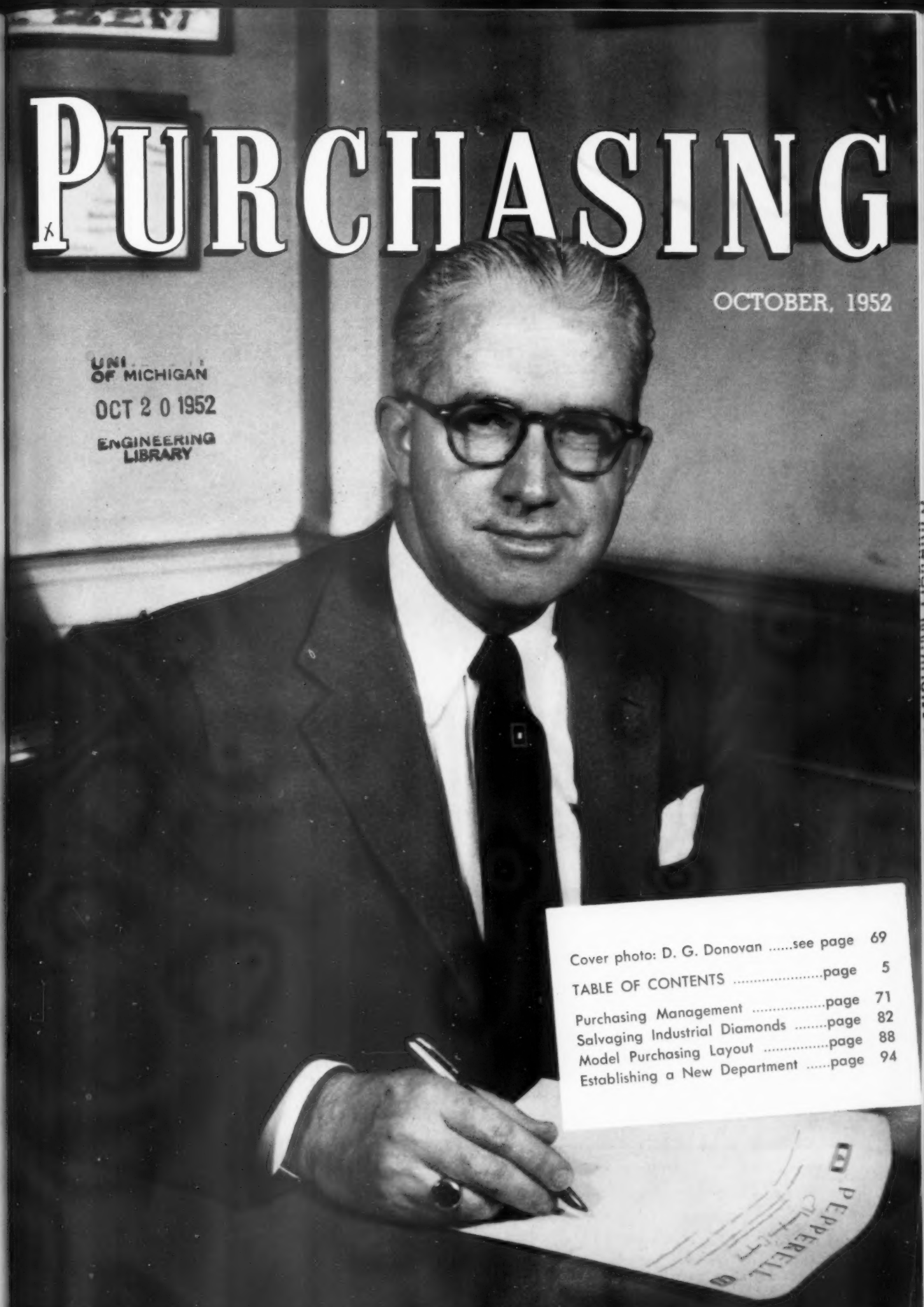
PURCHASING

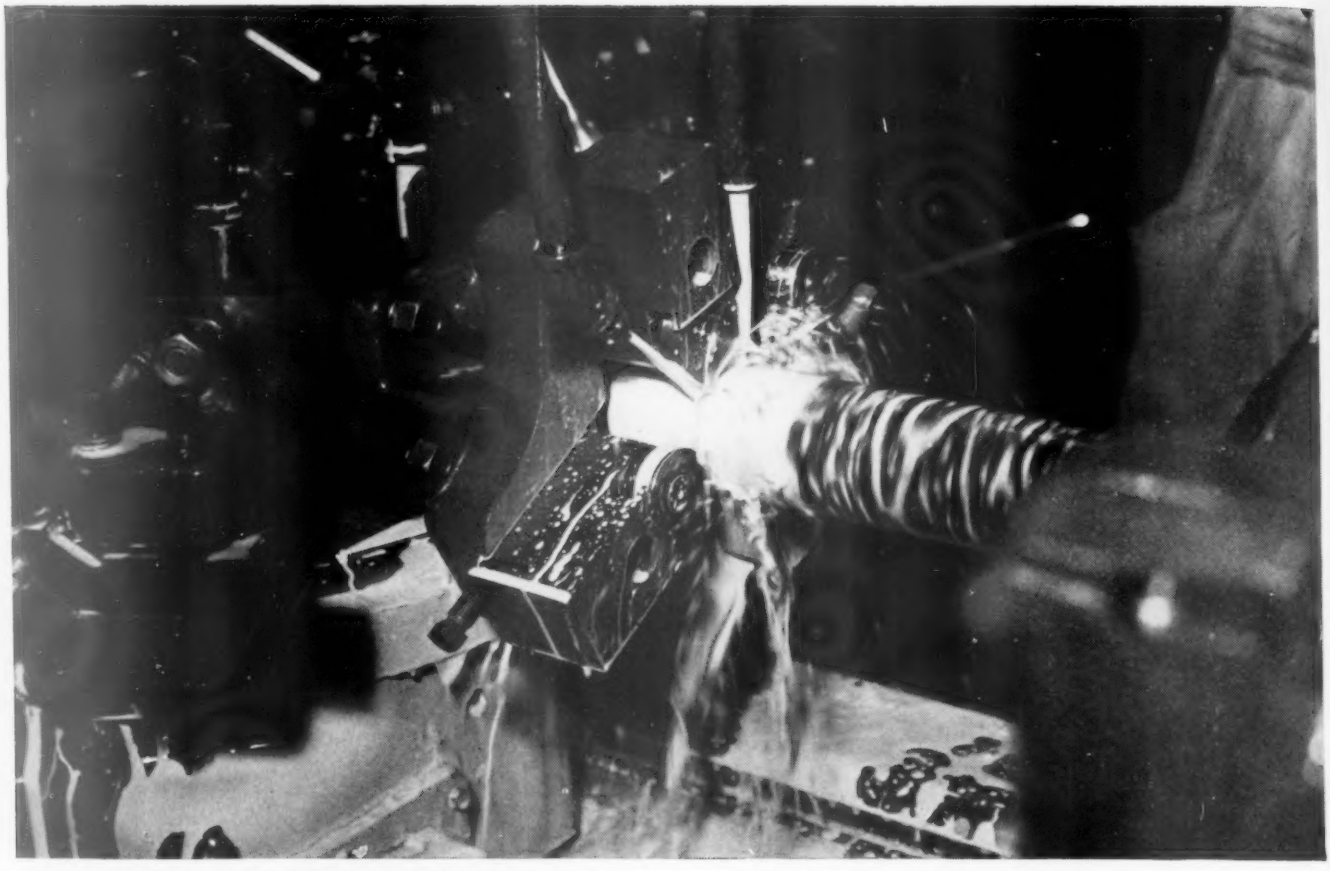
OCTOBER, 1952

UNI. OF MICHIGAN
OCT 2 0 1952
ENGINEERING LIBRARY



Cover photo: D. G. Donovan .....see page 69
TABLE OF CONTENTS .....page 5
Purchasing Management .....page 71
Salvaging Industrial Diamonds .....page 82
Model Purchasing Layout .....page 88
Establishing a New Department .....page 94

A CONOVER-MAST PUBLICATION · 50 CENTS



METAL WORKING is just one field in which Texaco...

Ups Production and Reduces Unit Costs...

Management's battle to keep its production curve pointed up and the curve of unit costs pointed down is never ending. Industry welcomes any help to attain these ends.

One important source of such help for all industry is available throughout the 48 States. Texaco Lubricants and Texaco Lubrication Engineering Service are famous aids to increased production and lower unit costs. A few examples are drawn from the hundreds on file – names and details on request.

* *Metal Working* – Specific figures are more available in this field than most others. Texaco cites: 1) a Chicago manufacturer's 233% increase in gear production per cutter life; 2) a 30% reduction in rejects for a Rochester plant; 3) another manufacturer's saving of 1,800 gallons of oil, $350.00 in pump repairs, and increased production of 50,000 units in one year from just one aluminum die casting machine.

* *Diesel Engines* – So many instances of reduced wear, reduced maintenance costs and lower fuel consumption have been achieved with Texaco's help that – *for over 15 years, more stationary Diesel h.p. in the U.S. has been lubricated with Texaco than with any other brand.*

* *Other Fields* – Aviation, copper mining, construction, railroads – these are a few of the fields in which Texaco is preferred.

In your own plant, effective lubrication – Texaco – can help you produce better, faster, and at a lower cost. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO Lubricants, Fuels and Lubrication Engineering Service

Faithfully yours 50 TEXACO *for Fifty Years*

TUNE IN: Tuesday nights on television—the TEXACO STAR THEATER starring MILTON BERLE. See newspaper for time and station.

PURCHASING

The National Magazine of Industrial Purchasing

VOL. 33, No. 4 OCTOBER, 1952

Economic Law Will Prevail		65
Purchasing Is What We Make It	*D. G. Donovan*	69
Management Principles and Planning Applied to the Purchasing Function	*J. B. Joynt*	71
PURCHASING Reports on Purchasing Opinion Should Industrial Operations be Further Decentralized?		75
Purchasing at Remington Rand Inc.	*F. J. Atwood*	77
Diamond Mine in Detroit		82
Canada Forges Ahead in Aluminum Production	*A. N. Wecksler*	84
X-Ray Gives the Answers	*J. Buhler*	86
Model Purchasing Layout at U. S. Rubber Co.		88
Rejecting Defective Equipment	*A. W. Gray*	91
Sound Sales Advice		93
Establishing a New Purchasing Department	*E. M. Rossome*	94
The Purchasing Job at Savannah River Plant	*H. F. Jones*	101
Where We Stand Commodity and Business Trends		105
Public Relations in the Purchasing Department	*S. Balsam*	113
Standardization in the Grinding Wheel Industry	*H. E. George*	116
This Business of PURCHASING		120
Legal Questions Asked and Answered	*L. T. Parker*	124
Timken Adopts Traveling Requisition		180

MONTHLY FEATURES

Purchasing Previews	13
Late Trade Bulletins and Catalogs	19
F. O. B.	26
Highlights	67
New Products — Ideas	132
Office Equipment and Supplies	179
Among the Associations	200
Personalities in the News	278
Buyer's & Seller's Mart	408
Letters to the Editor	410
Index of Advertisers	412

STUART F. HEINRITZ ..... *Editor*

B. P. MAST ..... *Chairman of the Board*
HARVEY CONOVER ..... *President and Treasurer*
A. M. MORSE, JR. *Vice President and Publisher*
A. H. DIX ..... *Vice President, Research*
GILBERT B. FERRIS ..... *Secretary*
RAY RICHARDS ..... *Assistant Publisher*

EDITORIAL STAFF

GEORGE E. HENRY ..... *Associate Editor*
PAUL V. FARRELL ..... *Associate Editor*
A. N. WECKSLER ..... *Washington Editor*
L. E. MCMAHON ..... *Production Manager*
A. M. GRADY ..... *Production Assistant*
E. C. ARINK ..... *Art Director*
DAVID BURKE ..... *Associate Art Director*

ADVERTISING REPRESENTATIVES

ALEX G. GRAAM ..... *New York*
RAY RICHARDS ..... *New York*
C. R. KINGSLEY ..... *New York*
WAYNE W. GEYER ..... *Chicago*
H. L. PELOTT ..... *Chicago*
KENNETH W. MCKINLEY ..... *Cleveland*
FORREST C. PEARSON ..... *Los Angeles*
DWIGHT JENNETT ..... *Los Angeles*
EDWARD M. BUCK ..... *Atlanta & Dallas*

EDITORIAL AND EXECUTIVE OFFICES

205 East 42nd Street, New York 17, N. Y.

BRANCH OFFICES

737 NORTH MICHIGAN AVENUE ..... *Chicago 11, Ill.*
1900 EUCLID AVENUE ..... *Cleveland 15, Ohio*
5478 WILSHIRE BLVD. ..... *Los Angeles 36, Cal.*
5 IVY STREET BLDG. ..... *Atlanta 3, Ga.*
IRWIN-KEASLER BLDG. ..... *Dallas 1, Texas*
NATIONAL PRESS BUILDING ..... *Washington, D. C.*

Published monthly by Peeaye, Inc.
Subsidiary of
CONOVER-MAST PUBLICATIONS, INC.
Printed at Orange, Conn.

CONOVER-MAST PUBLICATIONS
PURCHASING
MILL & FACTORY
AVIATION AGE
CONSTRUCTION EQUIPMENT
LIQUOR STORE
BAR & FOOD
CONOVER-MAST PURCHASING DIRECTORY
CONOVER-MAST BOOK DIVISION

PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent". Consolidated with "The Executive Purchaser".

Contents are indexed monthly and annually by the Engineering Index Service.

Subscription rates: United States, U. S. Possessions, and Canada: $4 per year; elsewhere, $10 per year. Single copies, 50¢.

ABC NBP

Printed in U.S.A., by Wilson H. Lee Co., Orange, Connecticut



9 design problems that can be met with the... Allenut

Ever-increasing applications for the new ALLENUT have caused sales to double within the past two years. Here are some of the things it can do to aid your product designing:



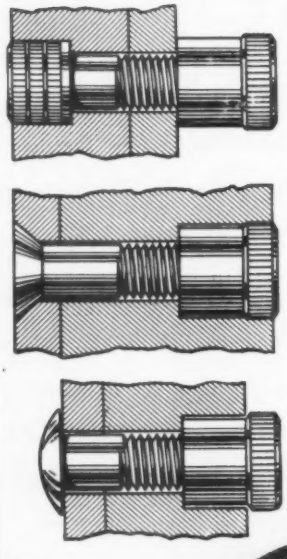
1. Self-anchoring in any metal. Allenut provides positive anchoring action through its hardened knurls.

2. Compact design. Requires no space for box wrenching. 12-point socket permits tightening in awkward places.

3. Smooth surfaces. Fits flush or below surface in counterbored hole . . . permits streamlined, safe surfaces.

4. A ready-made, hardened, tapped hole. When used as a bushing, prevents costly stripping of threads caused by frequent removal and replacement of screw or bolt. In castings and other soft metals a stripped hole can be counterbored, an Allenut inserted and the same bolt or screw used.

5. Tighter fit. Greater thread contact than with ordinary nuts because of Class 3 fit. Weld-like setups accomplished with one hand wrenching. Allenut holds firm against turn of screw.



6. Usable with any type of bolt or screw. Permits space-saving, internal wrenching of cap screws, T bolts, machine bolts, and other common fasteners.

7. Saves parts. No washers required when anchored.

8. Easier to use. Knurled ring facilitates fingering-in. Allenut is always square to counterbored hole. Removable by hitting screw or bolt head with tap of a hammer.

9. Reusable indefinitely. Anchoring action remains unimpaired. Hardened threads and socket stand up under repeated removal and replacement.





Allenuts are available in a full range of 14 standard sizes from no. 4 to 1" from leading industrial distributors.

We welcome your inquiry and request for engineering details on Allenut applications.



PURCHASING PREVIEWS

A WASHINGTON REPORT FOR PURCHASING AGENTS

October 1, 1952

GOVERNMENT CONTROLS ON THE WAY OUT

Government control program is fast coming apart at the seams, despite the loss to the economy of 20,000,000 tons of steel during the period of the steel strike.

Best indication of how unnecessary control regulations have become is the newest exodus of materials and components control officials who have been working in Government posts during the period of the emergency. These officials—many of whom held similar Government assignments during World War II—were "drafted" to take on jobs in Washington for the period of the emergency. They now feel their jobs are finished, and are leaving Government to return to industry.

It is interesting and significant to recall that the forecasts of those who designed the Control Materials Plan were that rigid materials controls would not be needed beyond the second quarter of 1952.

It is abundantly clear that on the basis of accumulated inventories of steel held by producers, distributors and fabricators at the beginning of the steel strike on June 2, the available supplies—with the exception of some specialty steels—were then in excess of requirements. Actually, inventories of steel were being built up at the rate of 1,000,000 tons a month.

It is nonetheless true that the steel strike did pull down inventories and threw a lot of industry-held inventories out of balance.

However, the industry will not seek to rebuild inventory back to the June 2 levels. Inventories at that time were greatly distended, and there is no need for such a large tonnage of steel in inventory.

STEEL SHORTAGE TO BE OF SHORT DURATION

Forecasts now are for the shortage in steel caused by the strike to be overcome quickly.

While there have been some complaints from producers of steel products—such as furnaces and boilers—that the steel shortage would lead to plant shutdowns, no major dislocations are expected to result from the steel shortage.

Best indicator as to the true balance between supply and demand is the military production schedule. National Production Authority officials set a schedule immediately on the termination of the steel strike to bring military production back on schedule by the end of November. Now it appears that the military can be brought back on production schedule by the end of September.

As soon as the pressure for military deliveries is eased, the justification for a continued control mechanism disappears.

From all reports, purchasing agents are being highly selective in their buying for inventory needs. The buildup of inventory in the current cycle will be far short of the June 2 pre-strike levels.

CONTROLS SHOULD HAVE BEEN RELAXED EARLIER

Substantial question is raised as to the administration of the control program during the mobilization. There seems to have been a considerable lack of confidence in the NPA materials control program. Fabricators are unwilling to accept the continued protestations of emergency and scarcity.

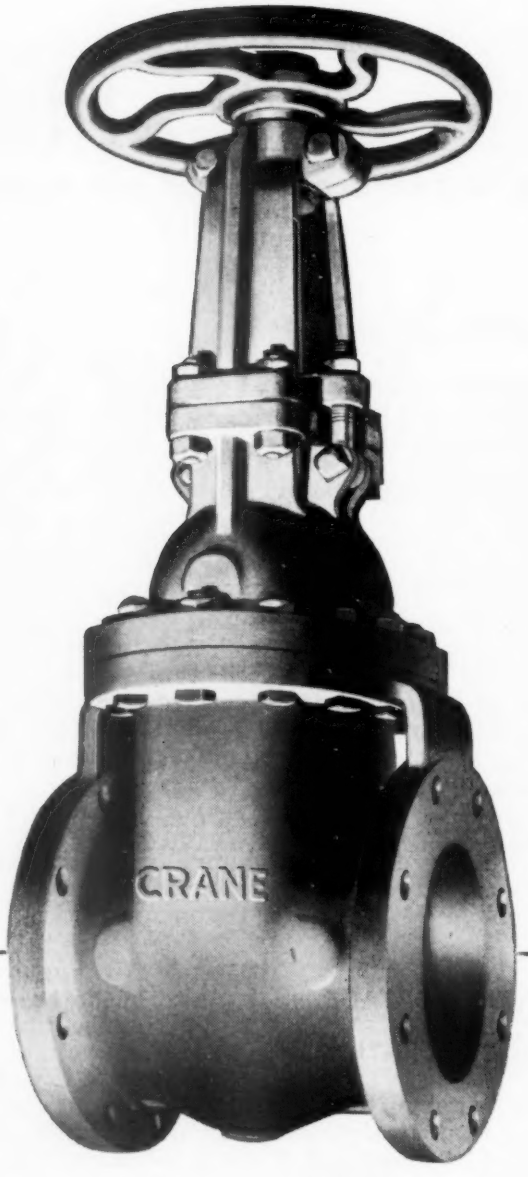
It is clearly apparent that the Government administrators of the controls program had no indication of how fast inventories were being accumulated in the late spring and early summer of this year—nor did the NPA officals have an accurate indication of the extent of the inventory accumulation.

There is now an attempt to blame industry for this looseness in the control program. Actually, the large accumulation of inventory is mainly traceable to the fact that the Government has maintained a rigid materials control structure far beyond the period when shortages of materials could justify it.

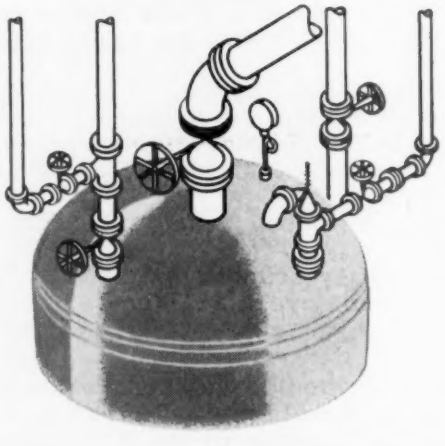
Based on the availability of materials, the control program could have been loosened up very substantially during the late spring and summer. Instead, it was decided that the CMP program would be kept intact as long as possible, on the theory that a control program would be necessary in the event of an outbreak of all-out war.

This CRANE VALVE took a load off the maintenance budget

This case shows the thrift that results in buying quality valves. They save production losses as well as maintenance costs. Here, in a starch plant under corrosive conditions, this Crane valve outlasted other valves more than 5 times. And it still continues to give perfect service. That's what Crane quality means in valves for every service.



Read these Facts of the Case!



Where Installed: On raw materials inlet to starch converter Valve constantly exposed to corrosive effects of hydrochloric acid vapors from converter, at working pressure of 50 psi, 280 degrees F.

Trouble Encountered: Valves formerly used needed repairs every 2 to 3 weeks, and had to be replaced every 3 to 4 months. Down time for converters was excessive; valve maintenance costs ran extremely high.

Solution and Result: The trouble was stopped by installing Crane Ni-Resist cast iron gate valves with 18-8 Mo Alloy trim. Inspected after giving 19 months' service without interruption, these Crane valves were still in excellent working condition.

More CRANE VALVES *are used than any other make*

CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5 • Branches and Wholesalers Serving All Industrial Areas

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

INEPTNESS IN CONTROL PROGRAM

The whole mobilization program has been characterized by a looseness in administration and a dispersion of Governmental authority which made an efficient mobilization program virtually impossible.

Most obvious example of the ineptitude involved in the administration of the program has been in the field of wages and prices. The price control agency had no jurisdiction in wage control, and the wage controllers had no say in the matter of prices. The Economic Stabilization Administrator, with a jurisdiction over both prices and wages, had only a nominal power of administration and virtually no powers of decision—as was clearly evidenced in the role played by the Economic Stabilization Agency during the wage and price controversy which led to the steel strike.

Another very graphic illustration of the waste in the administration of the mobilization program was the role of the National Security Resources Board, a civilian agency which was initially created to accomplish the defense mobilization planning, but which lost its role to the schizophrenic NPA-DPA combination. Even though the National Security Resources Board functions were taken over by other agencies, the Board still continues with staff and personnel.

Still a further example of mobilization mismanagement has been the operation of the Munitions Board, which until July 29 was tied down by regulations which diluted its authority.

On July 29, the "charter" of the Munitions Board was modified to give the chairman of the Board greater authority over matters of military procurement and supply-also greater authority to see to it that policy decisions are observed at all levels of the military chain of command.

To protect the interests of small business in the mobilization period, there is an office of small business in the Department of Commerce, another in the National Production Authority; the Department of Defense has special arrangements for the protection of small business, and finally a separate and independent agency—the Small Defense Plants Administration— operates to help smaller manufacturers, with a separate administrative organization in Washington and an extensive field service.

Even the highly initiated devotees of Government complexities find it difficult to trace the authority of the Office of Defense Mobilization, which has been functioning since the first week in April with an acting chairman.

CONTROL AGENCIES BEING CUT DOWN

The staffs of the various mobilization agencies are being scaled down as the last vestige of need for controls disappears.

Government control agencies are now reducing their staffs in accordance with the lower budgets voted them by Congress. The reductions in force are primarily dictated by the availability of funds for operation, rather than any need for the specific function.

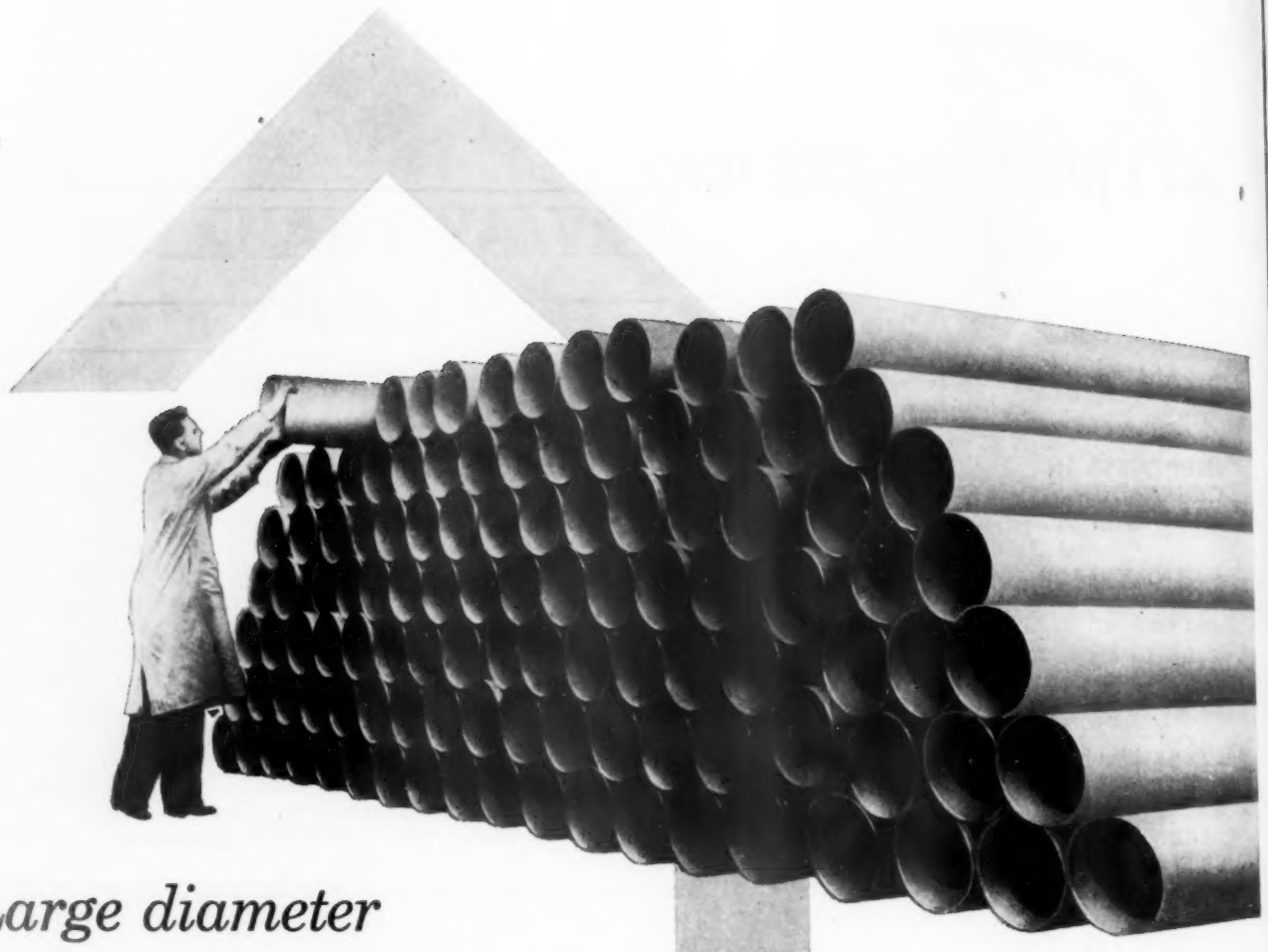
Obviously, in appealing to Congress for funds to continue operation, there is a tendency to make it appear that the specific agency has a continuing function, even though such a justification may be highly over-stated.

WASTE IN MILITARY TOO

On the military side, there is still considerable wrangling between the services as to the relative importance of their function in war. The basic policy is still to maintain balanced forces as between air, land and sea. Advocates of air power are seeking to unbalance this concept in strong favor of air power.

These pressures have led to considerable duplication of effort and facilities.

Occasionally these differences within the military crop to the fore and break out in a public controversy, but with the civilian administration of the military mobilization so loose, there is little authority, or even incentive, to check the waste that occurs in the military.

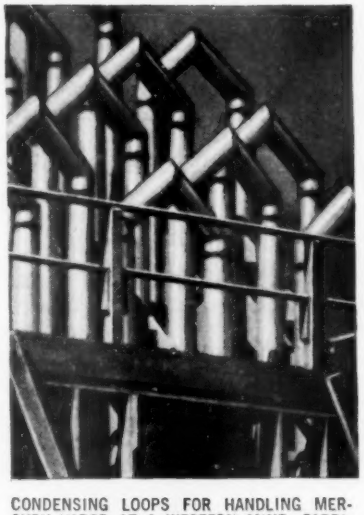


Large diameter

TRENTWELD STAINLESS TUBING

for your requirements

TRENTWELD Large Diameter Stainless Steel Tubing meets precisely the tubing requirements of fabricators, designers and manufacturers of processing equipment. Available in diameters of 4″ to 40″ OD, TRENTWELD is precision-finished with absolutely uniform section. TRENTWELD is furnished in any finish, for fabrication with any fittings you select. Call on us.



CONDENSING LOOPS FOR HANDLING MERCURY VAPOR AT A WESTERN MINE. FABRICATED OF CR-NI STAINLESS STEEL.

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)

Modernize

YOUR CATALOG AND BULLETIN FILES

Bring Your Source Information Up-to-Date on New and Improved Equipment, Products and Materials. This is the first of—FOUR Pages Listing the Latest Trade Literature! Check All Four—19, 20, 22 and 24!

Bentwood Furniture

1. SMART line of laminated bentwood furniture designed primarily for offices, institutions, etc., where sound construction is of the utmost importance, is described and pictured in new catalog just issued by Hudson Craftsmen, Inc. Exposed laminated bentwood parts are of eastern birch hardwood, and wherever practical tee-nut construction replaces ordinary wood screw methods of joining. Finishes are in natural, walnut or mahogany, preserving the rich grain of the birch. Solid colors are also available. Wide selection of upholstery fabrics is available.

Overhead Tramrail Equipment for Materials Handling

2. Booklet #2003-H, "Cleveland Tramrail Engineering and Application Data", issued by the Cleveland Tramrail Divn. of the Cleveland Crane & Engineering Co., gives a good conception of what tramrail overhead material handling equipment consists of and how it can be applied to bring about one or more of fifteen definite advantages, one of which is the drastic lowering of manufacturing costs. Photographs and sketches show various kinds of installations and equipment.

New Standard Thread Gage Booklet

3. Bulletin SG-52, 20 pages, lists prices of standard thread gages made by Detroit Tap and Tool Co. Gages include thread plug gages, thread ring gages and thread setting plug gages for machine screw and fractional thread sizes. Tables listing 'W' and 'X' and 'Y' tolerances for thread gages are included. Pipe thread gages include thread plug and thread ring gages for A.S. taper pipe threads; plain plug, thread plug, plain ring and thread ring gages for Aeronautical Standard pipe threads; and thread plug and thread ring gages for A.S. Dryseal pipe threads.

Resistors for JAN-R-11 Uses

4. Bulletin describing fixed composition resistors designed for JAN-R-11 uses covers the following types: RC10, RC20, RC21, RC30, RC41 and RC42. The bulletin includes prices on the various fixed composition resistor types. Stackpole Carbon Co.

Auto-Typist Writes Push-Button Letters

5. BULLETIN describes the Push-button Model 5060 Dual Selector Auto-typist, a fully automatic writing machine, which automatically operates any typewriter, electric or manual, by means of perforated paper rolls. A push-button electric switching circuit controls the roll transmissions. Two record rolls carry perforations for 100 or more different paragraphs, with corresponding push buttons. Buttons are pushed in desired paragraph sequence, and machine selects and types each paragraph through to end of letter. It may be stopped at pre-determined spots for fill-ins. This unit also features automatic addressing, making it a fully automatic letter-writing machine—date, name, address and salutation, all without touch of the human hand. For full details check No. 5 on Reader Service Coupon. American Automatic Typewriter Co.

Polaroid 60-Second Copying Device

6. FOLDER describes the Polaroid Corporation's 60-second copying device. When used in conjunction with the Polaroid camera, the copymaker makes 3¼" x 4¼" photo copies of letters and other objects measuring to 11 x 14 in. one minute after shutter is snapped. Unit is always ready for use on desk-top or table when plugged into an AC socket. It is equipped with its own polarized

(*Please turn to page* 20)

READER SERVICE COUPON OCTOBER, 1952

MAIL TO:
PURCHASING—Reader Service Dept.
205 East 42 Street
New York 17, New York

Circle the numbers of the trade literature items you want.

1	2	3	4	5	6	7	8	9	10	11	12	13
14	15	16	17	18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	35	36	37	38	39
40												

Name ..... Title .....
Company .....
Street Address .....
City ..... Zone ..... State .....

(*Continued from page* 19)

illumination, indicating scale, exposure guide, adjustable platform, built-in timer and fluorescent bulb. Unit requires only 13½" x 16" of desk space. Folder shows samples of copywork. Polaroid Corporation.

Inside Telephone System for Maximum Communication Efficiency

7. INCREASED departmental communication efficiency is the subject of bulletin on the benefits obtained by separating inside calls from outside calls, over P-A-X automatic telephones. Cash savings are said to be considerable as fewer commercial phones are necessary. Modern automatic handset telephones are used. The systems pay for themselves within a few years after which the service is free except for nominal cost of maintenance. Each system is composed of standard telephone equipment. P-A-X switchboards are designed for as few as ten phones, 25, 50 or 100 phones with built-in extra capacity, and larger. Automatic Electric Sales Corp.

Flexoprint Makes for Low Cost Easily Maintained Lists

8. FLEXOPRINT—a new method of preparing indexes, price and part lists, directories, etc. is full described in a new booklet KD 610 issued by Remington Rand Inc. It eliminates typesetting and proofreading and permits quick and easy changes simply by adding or removing typewritten cards. Lists are easily maintained and always up to date and ready for printing. Copies are made by offset printing process.

Cut-Off Saw Bands

9. Bulletin 51-803 gives complete data on cut-off saw bands for horizontal and vertical type machines. The saws may be used for production sawing of all kinds of material. In addition to ordering information, the folder includes specifications as to the available types, lubricating information for cutting different types of material, use of different tooth 'sets' and data on specific cutting operations. Prices are given for welded, ready-to-use lengths of all sizes as well as bulk quantities. The DoAll Co.

LATEST TRADE LITERATURE
Check Over All Four Pages!
19, 20, 22 and 24
Check Coupon on page 19

Hand Operated Tools for Cutting Steel Rod, Wire, Strapping, Etc.

10. Catalog 252 describes line of portable cutting tools made by the Manco Mfg. Co., which range from light-weight hand cutters to larger, high capacity bolt cutters, a line of hand-operated units for cutting steel rod, wire, fence, strapping, high tension wire and variety of other materials. Photographs and specifications accompany each description.

Colloidal Graphite for Surface Coatings and Impregnation

11. Bulletin 435 issued by Acheson Colloids Co. explains the uses of colloidal graphite as a dry film lubricant, as a surface coating for various mechanical devices, and as an impregnating medium for a variety of materials including porous minerals, cloth, felt, leather, asbestos and paper. "Dag" colloidal graphite is chemically inert. Its insolubility in acids and alkalis prevents chemical reaction with corrosive materials and subsequent loss of lubricating ability. It resists oxidation at temperatures up to 500° C. and will withstand heat far better than ordinary petroleum lubricants.

Drill Jig Bushings Price List

12. A new 6-page folder listing quantity net prices for ASA Standard drill jig bushings is available from Colonial Bushings, Inc. The list, which is a companion piece to the company's catalog B-649 covers prices of all fixed renewable, slip renewable and head press fit jig bushings. Prices for headless, headless press fit, and head type liners are also included.

One Stop Short Run Stamping Service

13. Literature describing their one-stop short run stamping service is available from the Federal Tool & Manufacturing Co. Four stamping services are described. The complete service includes short run metal stampings, phenolic stampings, special wrenches, and nameplates, all die stamped to specifications. Facilities enable company to stamp any metal, fibre, phenolic or other material that can be stamped, in any quantity from 2 pieces to 10,000, in any shape or size up to 9" x 12", and any thickness up to 3/16".

Power Tools for Cutting, Shaping Drilling and Finishing

14. New 52-page catalog on power tools for cutting, shaping, drilling and finishing wood, metal, fibre and plastics has just been issued by the Boice-Crane Company. Intermediate capacity band saws, contour saws, band filers, drill presses, tool grinders, jig saws, jointers, lathes, planers, shapers, saw-jointers and belt, drum and spindle sanders are described and illustrated.

Dumbwaiters for Between Floors Handling

15. Power-driven dumbwaiter with fully automatic push button control stations for conveying up and down and between floors, is described in Catalog 501. Capacities up to 500 lbs. Cab is usually 3' x 3' x 4' high. Speed 40' per minute. Unit includes wall anchors, rails, switches, motor, drum, cable and all components for complete installation. Sage Equipment Co.

Investment Castings Save Time and Money

16. "Pour Yourself an Assembly with Investment Castings" is title of booklet issued by Precision Metalsmiths, Inc. Illustrations show the process with which Precision has cast more than 160 different ferrous and non-ferrous alloys for parts ranging in weight from fraction of an ounce to more than five pounds. Advantages of process in simplifying manufacturing, permitting use of metals not suited to other fabrication, accuracy of dimensions and reproductions of detail and intricate design are explained.

"Idea Book" on Uses of Hydraulic Tools and Hand Tools

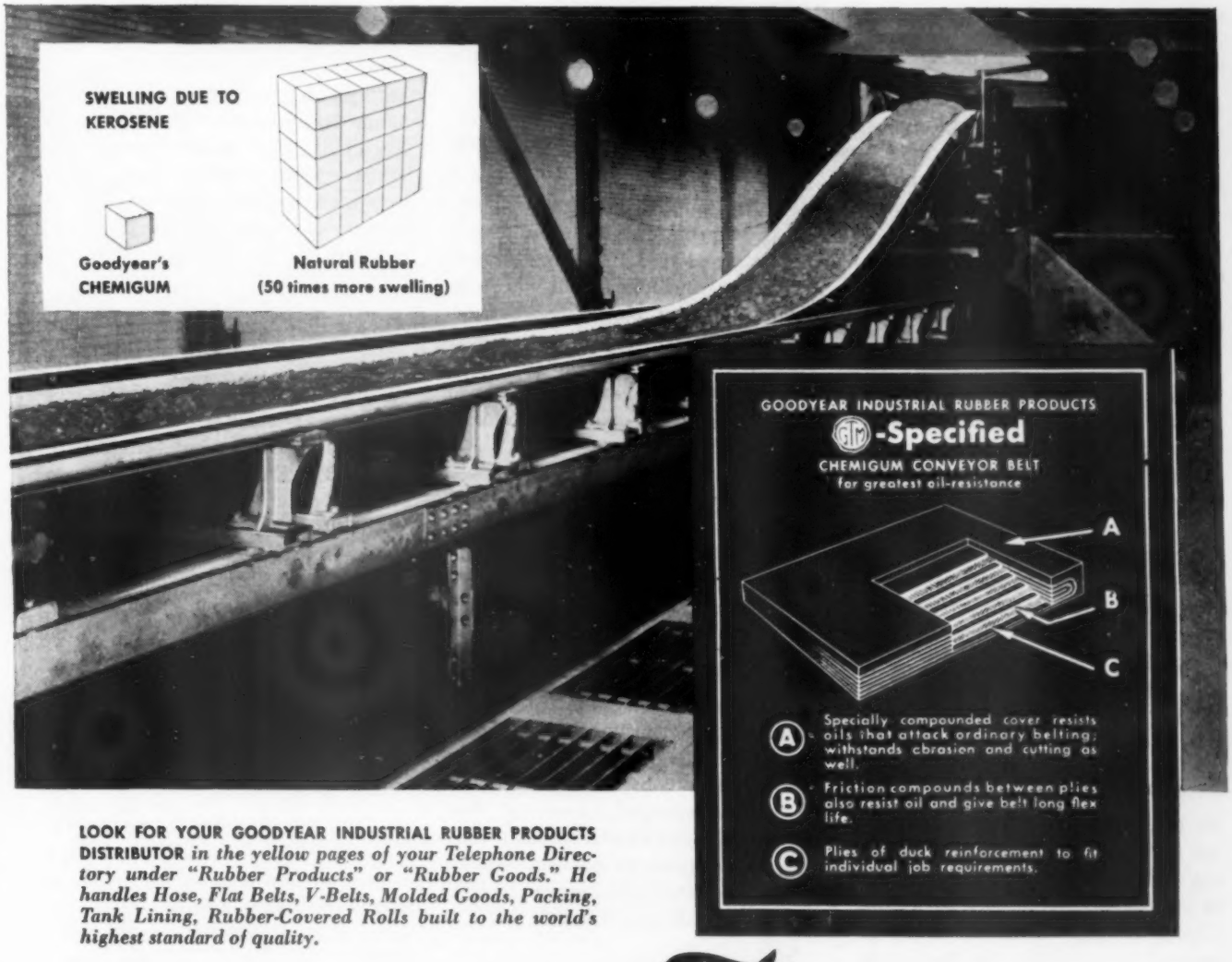
17. "Idea Book" of 64 pages, by photos and text presents successfully applied ideas in production, mainte-

(*Please turn to page* 22)

Here's the
LONGEST-LASTING BELT
for handling Oil-Treated Fuel

HERE'S graphic evidence of the oil-resistance built into the covers and carcass of CHEMIGUM conveyor belts—designed by the G.T.M.—Goodyear Technical Man—for use in service where severe oil and grease conditions cause premature failure of conventional belts.

Tests with kerosene show that Goodyear CHEMIGUM covers swell only 2% as much as high-grade conveyor covers made from natural rubber. (See Chart.) CHEMIGUM will also resist oil far better than many other oil-resisting synthetics used in belts. When destructive effects of such solvents are present, consult the G.T.M. for full details, or write Goodyear, Akron 16, Ohio.



LOOK FOR YOUR GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR *in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods." He handles Hose, Flat Belts, V-Belts, Molded Goods, Packing, Tank Lining, Rubber-Covered Rolls built to the world's highest standard of quality.*

GOODYEAR

THE GREATEST NAME IN RUBBER

Chemigum—T.M. The Goodyear Tire & Rubber Company, Akron, Ohio

(Continued from page 20)

nance, construction, laboratory and other fields, by users of Blackhawk remotely controlled hydraulic jacks. gauge-equipped and standard hydraulic jacks, pipe benders, knockout punchs, hydraulic pumps, torque indicators and hand tools. Tested uses introduce new ease, saving and safety to a great number of operations. Blackhawk Mfg. Co.

Five Hose Types in New Line Replace Former 18 Types

18. The Thermoid Company announces the publication of an eight-page pamphlet describing their new "Basic Five", color-coded, multi-purpose industrial base line. The five hose types in the new line replace 18 hose types offered formerly. The publication gives details of construction, sizes, lengths, pressures, recommended couplings and uses for the new hose lines. It points the way to eliminating certain hose types and reducing inventories.

22 Pages of Information on Fasteners

19. The new Southco Handbook of Fastening Specialties, Catalog B-2, contains 22 pages of information on industrial fasteners for metal to metal and metal to wood applications. Blind rivets and a variety of door latching and fastening devices are illustrated in this spiral bound book which also includes several pages of frequently used engineering data. Installation procedures, sample applications and complete dimensional information are given for all fasteners. Southco Divn., South Chester Corp.

Tool and Die Salvage Welding

20. New 64-page illustrated manual on "Tool and Die Salvage Welding" Procedures has been published by the Eutectic Welding Alloys Corp. Copies of this "How to Weld It" manual are available for the asking.

Valves for Fluid Control

21. Series of dimensional data sheets on line of valves for fluid control give complete valve dimensions. A set of these data sheets is available from Hoke, Inc.

LATEST TRADE LITERATURE

Check Over All Four Pages!
19, 20, 22 and 24
Check Coupon on page 19

Extruding and Vulcanizing Equipment

22. Twelve page illustrated catalog features latest models of extruding and vulcanizing equipment for the rubber and plastics extrusion industries. In addition to extruders and auxiliary equipment, the catalog describes complete installations of assemblies for thermoplastic wire insulating and for continuous vulcanizing. "Therma-Fin" heating jackets for precise temperature control are also described. The Standard Machinery Co.

Heavy Duty Tachometer Heads

23. Technical Data Sheet No. 56-M describes rugged heavy duty speed measuring heads for rotational or linear speed measuring installations requiring ruggedness and where the head shaft can be rotated between 100 and 10,000 RPM for full scale reading. Metron Instrument Company states that the combination of ruggedness and adequate closure against dirt, abrasives, and splashing liquids insures the ideal answer to the problem of measuring speed under adverse conditions.

Electrostatic Painting Saves Up to 80%

24. Bulletin describing the Staticote electrostatic painting process, states that these systems save up to 80% in time, material and labor costs. The system is engineered to operate with positive control of the amount of paint deposited, assuring that pieces will have identical finish. This can be adapted to present equipment. The Staticote system is sold outright. Staticote Sysems, Inc.

Welded Powdered Metal Bus and Cable Connections

25. Cadwell electrical connections and the Cadwell welding process employing powdered metal in small graphite crucible, which is ignited by means of a spark gun, are described in booklet which illustrates the numerous types of connections that can be easily made. The molten copper flows over the pieces in the graphite mold, welding them together. The catalog includes 20 pages on bus bar and tubular bus applications. Labor costs are substantially reduced. Connections are permanent; cannot loosen or corrode. Erico Products, Inc.

Booklet Tells About Arc Welder Application Refinements

26. Up-to-date information on engineering improvements and application refinements of the Type RA d-c arc welder are offered in new booklet announced by Westinghouse Electric Corporation. Performance characteristics of this selenium rectifier welder, its physical construction, electrical specifications and ratings, and approximate dimensions and weights, are also given. Sections tell about dual units, Heliarc torch welding, duplex welders, stud welding and control attachments. Copy of booklet B-3453 is yours for the asking.

Recording Thermometers and Gauges

27. Two-color thermometer specifications catalog has been prepared by the Instrument and Gauge Division of The Electric Auto-Lite Company. It describes the complete line of Auto-Lite recording thermometers and gauges as well as dial indicating thermometers. Instructions for ordering are included in the catalog which is said to be the most complete one ever issued by the company.

Quick Production of Photo-Offset Duplicating Plates

28. THE Plastiphoter is an exposure cabinet for the quick production of photo-offset duplicating plates of letters, bulletins, forms, and a variety of line, half-tone and photographic subjects. It can be plugged into any 110V ac or dc circuit. It is available for making plates in two sizes, not larger than 10" x 16", and model which takes plates up to 20½" x 15½". The Plastiphoter, and the Photo Speed Plastiplate which eliminates many time consuming

(Continued on page 24)

STANDARDS and SPECIALS by the Millions

THE FERRY CAP & SET SCREW CO.

2165 SCRANTON ROAD • • • CLEVELAND 13, OHIO



"SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel — AISI C-1038 — to standards for Full Finished hexagon head cap screws — bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.

"HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel — AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.





"LO-CARBS"

Made of AISI C-1018 steel — bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size — not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.

SET SCREWS

Square head and headless — cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.





FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.

FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.





"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.

*

ADJUSTING SCREWS

Valve tappet adjusting screws — Hexagon head style — to blue print specifications — hexagon head hard; polished if specified — threads soft to close tolerance — points machine turned; flat and chamfered.





CONNECTING ROD BOLTS

Made of alloy steel — heat treated — threads rolled or cut — finished to extremely close thread and body tolerances — body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.

*

SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



FERRY PATENTED ACORN NUTS



For ornamental purposes. Steel insert — steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.

Tapped 1/4" to 3/4" inclusive. Cross section of Ferry patented acorn nut, showing how steel hexagon nut fits snugly into shell.



Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907

STANDARDS carried by LEADING DISTRIBUTORS

*

SPECIALS furnished to BLUE PRINT SPECIFICATIONS

WRITE FOR INFORMATION

SEND FOR SAMPLES

(Continued from page 22)

operations and saves chemicals and processing time, are described in bulletins available from Remington Rand Inc.

Bench Chaser Sharpening Machine

29. New universal bench type chaser sharpening machine saves space and frees heavy, expensive machine tools for their intended uses. Inexperienced operators can sharpen chasers better and faster with this machine, according to Jones & Lamson Machine Co. Catalog 503 illustrates and describes machine.

148-Page Roller Chain Data Book

30. Roller chain data book No. 2457, 148 pages available from Link-Belt Co. is described as being one of the most comprehensive books ever developed on roller chain and its applications. Detailed engineering information covers the selection, installation, lubrication and maintenance of roller chain for drives and conveyors, and sprocket wheels. The information enables selection of the proper roller chain for any application. One section of 24 pages contains comprehensive group of preselected drives which are available from stock. Book also offers a guide to the application of stainless steel and bronze chains.

Multi-Cycle Electric Tool Catalog

31. Comprehensive catalog, 36 pages, issued by Ingersoll Rand Company, covers their complete line of Multi-Cycle Electric Tools. It is divided into eight sections: Impactools, Nut Runners, Drills, Screw Drivers, Grinders, Buffers, Sanders and Polishers. Over 100 sizes are listed covering both 180 and 360 cycle models. Complete lists of equipment and accessories are included.

Storage, Wardrobe and Combination Cabinets

32. Complete line of storage, wardrobe and combination cabinets in both single-door and double-door types, is covered by Catalog C-200 issued by the Penn Metal Corporation. Also included in the heavy gauge steel line are desk-high, counter-high and tool cabinets.

LATEST TRADE LITERATURE
Check Over All Four Pages!
19, 20, 22 and 24
Check Coupon on page 19

Corrosion-Resistant Polyvinyl Chloride Products

33. Circular gives a general outline of Agilide (unplasticized polyvinyl chloride) corrosion-resistant equipment and products made by the American Agile Corp., who state that Agilide offers the maximum in corrosion resistance of any polyvinyl chloride compound in combination with the necessary physical propertis required of a thermoplastic structural material. Agilide features complete rigidity, high strength and light weight. Applications include pipe lines, containers and tanks, tank liners, exhaust hoods and systems, reaction vessels, acid pumps, etc.

Braided Packings

34. Bulletin tells about Lattice-Braid rod packing, product of the Garlock Packing Co. It contains sectional drawings showing structure of packings, illustrates the different types, presents tables showing general service recommendations and specifications, and user reports.

pH Measurement and Control

35. A review of pH theory and its practical applications in industrial measurement, and step-by-step explanation of the units employed in the pH control cycle, are presented in 16-page bulletin, profusely illustrated to show instrument details, issued by the Foxboro Company.

Steel Utility Buildings

36. USF all-steel Utility Buildings for industrial and other uses are described and illustrated in eight-page booklet issued by United Steel Fabricators, Inc. Three pages of illustrations show styles of the structures and steps in erection. Descriptive matter includes section on design features and complete details of assembly, along with drawings of six standard wall panels. One page is devoted to the Handy Hut, a small portable or permanent steel utility building.

Turco Compounds for Metal-Working Industry

37. Booklet A-33 outlines chemical processing operations of the metal-working industry and describes tested and proved Turco-manufactured compounds to suit each operation in cleaning and processing; also, specialty products for rust prevention, coolants, spot welding, and maintenance products. Phosphating Reference Chart tells how to use phosphating materials that meet JAN-C-490 specifications.

Cams and Tools for Automatic Screw Machines

38. Catalog 9 issued by the American Cam Company describes and illustrates cams, special tools and circular form tools, blanks, rollers and pins, for all makes of automatic screw machines.

Equipment for Solving Moisture Problems

39. Bulletin entitled "Because Moisture Isn't Pink" tells how manufacturers in various industries are employing Lectrodyryers to dry air, gases and organic liquids to low dewpoint. If high humidities are adversely affecting manufacturing operations in your plant, you will be interested in the illustrations and descriptions of some of the more common types of drying installations presented in this bulletin. These drying machines range in size from small laboratory models capable of handling a few cubic feet per hour, to giant wind tunnel installations handling three tons of air per minute. Pittsburgh Electrodryer Corp.

Silastic R Tape for Electrical Equipment

40. Silastic R Tape is a semi-vulcanized, glass cloth reinforced tape that is easy and convenient to use in wrapping coils and other electrical equipment. It is easily vulcanized to form a continuous, uniform jacket that is resilient, heat-stable and moistureproof. It is available in thicknesses of 10, 15 and 20 mils. Data sheet G-25 issued by the Dow-Corning Corp. gives full information on the use of R Tape to obtain the heat resistance of Class H insulation in a moisture-proof, flexible form.

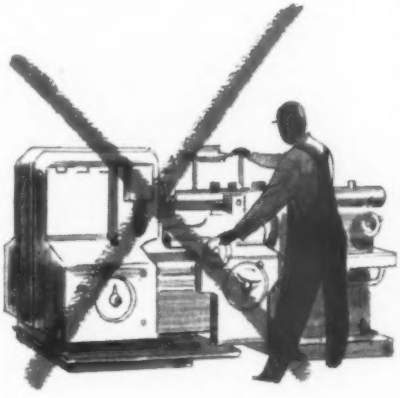
another case where welded steel tubing does the job best...





From lengths of 2½" ELECTRUNITE Welded Steel Tubing to finished flash-hider being made for the Army Ordnance Corps by Will-o-Hill Industries, Willoughby, Ohio.





Cost Cut 92%!

Electrunite Welded Steel Tubing can run up interesting cost savings for you, too

● These flash-hiders for 20-mm. machine guns were formerly turned out of 3" solid bar stock. Cost was terrific, production rates were low, scrap generation was appalling. In other words, flash-hiders were really being made the hard way.

Using some top-flight native ingenuity, plus lengths of ELECTRUNITE Welded Steel Tubing, 2½" diameter, Will-o-Hill Industries, Inc., Willoughby, Ohio, now make flash-hiders for the Army at a breath-taking fraction of their former cost, and with *no scrap loss*. They are turned out faster, too, with less-skilled help, on low-hourly-cost punch presses, instead of on costly lathes.

ELECTRUNITE Welded Steel Tubing is successfully taking major deformation that even we never dreamed it would stand. What's more, Will-o-Hill report practically no spoiled or rejected pieces.

Does this give you ideas about using ELECTRUNITE Welded Steel Tubing in your products . . . to cut material and production costs, speed production, and produce better parts? We'd like to show you what's being done. And help you switch to ELECTRUNITE Welded Steel Tubing.

50th ANNIVERSARY 1902 1952 STEEL and TUBES DIVISION
ELECTRUNITE TUBING

REPUBLIC STEEL CORPORATION
STEEL AND TUBES DIVISION
224 EAST 131st STREET • CLEVELAND 8, OHIO

REPUBLIC STEEL

Republic
ELECTRUNITE E.M.T.



for Quality Reamers

LI

stands alone

LI

The Reamer Specialists

LAVALLEE & IDE, INC.

CHICOPEE, MASS.

F.O.B.



FILOSOFY OF BUYING

THE legal experts who have been warning us that the purchasing agent is in a vulnerable position on violations of NPA or price regulations, as well as the seller, were not kidding. In a recent action filed by NPA against a San Francisco firm, for alleged violation of steel regulations, the charge names the company, the president, the sales manager, the secretary-treasurer, and the purchasing agent as defendants.

• •

INDUSTRIAL relations may seem to be a bit out of the purchasing agent's normal sphere of activity. But when the Detroit Street Railway was faced with the prospect of halting operation of its gasoline driven buses, serving a million riders, because of a walkout at the refineries, the man designated by city officials to talk to the unionists was DSR Purchasing Agent Louis Smith. After all, it was a problem of supply.

• •

CAN'T get away from inflation, and you can't win. In a column entitled "House Budget Slash Actually Inflationary", Trade Winds commentator Lou Schneider points out that:

"The house slash of $1,725 million from President Truman's foreign aid bill is a great triumph for the White House. Inflation-minded speculators note that it is reduction only from the $7,900 million he had requested, but actually gives him what he wanted—more than last year . . . . Therefore the house vote for the foreign aid measure is a deceptive saving and should be recognized as inflationary."

• •

REPORTING on the election of H. W. Christensen as president of the N.A.P.A., the *American Metal Market* remarked that Chris is the first purchasing man from the steel industry to be so honored, and adds that this is but the second time in the Association's 37-year history that a West Coast man has been chosen for the position. In the interest of historical accuracy, and in justice to the splendid leadership that the West Coast has provided for purchasing, the latter statement should be corrected. This is the fourth time that N.A.P.A. has looked to California for its national leadership. Mr. Christensen's predecessors in office include George Richardson of Los Angeles (1931-1932), Carleton A. Kelley of Riverside (1936-1937), and George Aljian of San Francisco (1946-1947).

• •

PURCHASING has "arrived"—or perhaps it's all a matter of degree. A writer in the April-May-June issue of *Trends*, official magazine of SIPMHE (The Society of Industrial Packaging and Materials Handling Engineers, in case you didn't know) starts his article with the observation that: "Packaging—with its Siamese twin, Materials Handling—should rank in every industry squarely along side of Purchasing, Manufacturing, Inspection, Financing, Labor Relations, Sales and Advertising."

• •

BUSINESS columnist J. A. Livingston decries the current pessimistic talk about the business outlook, which he calls "recessionitis". In a column headed "No Recession Is Seen by Experts", he tells of a round table meeting of a dozen business analysts who voted 11 to 1 that the possibility of recession can be firmly dismissed. It is his observation that:

"The only real believers in recession these days are its sufferers—men's clothing manufacturers, textile manufacturers, washing machine companies, and makers

of electrical appliances of all kinds. The consumer durable goods industries are really beginning to feel what it is to be overproduced."

Reminds us of the boxing manager who encouraged his punch-groggy fighter, who was absorbing a terriffic beating in the ring, by shouting, "He can't hurt *us*." Wonder what the tune will be when we wake up to an overproduction of optimistic forecasting.

• •

ACCORDING to a recent INS news release, State P. A. Carl Anderson of Pennsylvania has made a standing offer to buy a hat for any person who can name a single item that is not purchased for use somewhere in the vast and varied operations of the state government. He is quoted as saying, "I have made that offer for 13 years, and haven't bought a hat yet." Maybe that's the tip-off—hats.

In support of his claim, an impressive list of unusual or unlikely purchase items is cited: mustard and mine locomotives, lipstick as a morale builder for women patients in mental institutions, and frozen sheep livers fed to young fish at the state hatcheries. The item that intrigues us most does double duty. Baled rags are purchased to satisfy the destructive urge of violent mental cases, who would otherwise turn their attention and energy to doors and windows and furniture. When the rags have been thoroughly torn to tatters, the less violent inmates patiently weave them into mats and rugs.

• •

WE take instantaneous communication so much for granted today that it's hard to visualize what buying and selling could be like in the older, slower days. The *Journal of Commerce* recently dug up a story from 1834, telling how a shrewd New York merchant picked up a Liverpool newspaper from a clipper ship that arrived after the New York papers had gone to press on Christmas eve. It told of rising cotton markets in England. He had two days before the news could be published here. A fast messenger to New Orleans (11 days) picked up three more days on the mail schedule. As a result, he was able to pick up 50,000 bales of cotton at $60 and sell it to Liverpool agents in this country at $85 before the competition knew what was happening, and pocketed a fast million and a quarter thanks to slow communication methods.

SMALL STAMPINGS

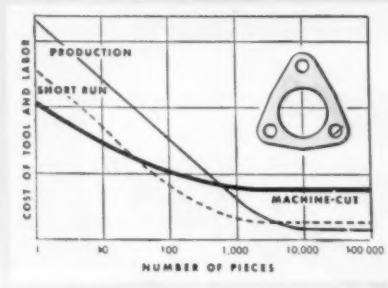
A COST-SAVING, VERSATILE APPROACH TO THEIR MANUFACTURE

Possibly you've always thought that a quick look at the quantity involved decides how a stamping shall be made. Sometimes it is done that way but it isn't the sure way to lowest costs.

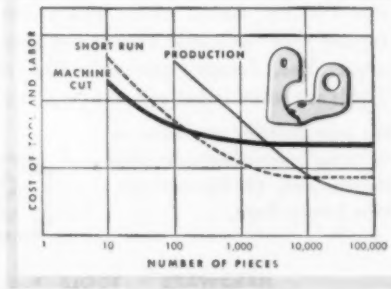
A more scientific approach by the STAMPINGS DIVISION of the Laminated Shim Company in Glenbrook, Connecticut frowns on the term "short run stamping." There is what is known as the short run *method* but there is no definite dividing point between short run and production quantities. Contour, tolerances, material, many other items all affect the manufacturing method when costs are being carefully figured.

NO ONE METHOD IS ALWAYS CHEAPEST; THREE ARE NEEDED

Machine-Cut Method: The STAMPINGS DIVISION goes one step further than Short Run and Production Methods. The Machine-Cut Method, though not strictly a stamping operation is a valuable addition to stamping procedure. Custom built slitters, cutters, saws and files use experience-gained techniques to fashion the smaller quantities of parts. No dies are made; only stock punches are used. Obviously labor cost is understandably high but there is no tool charge.



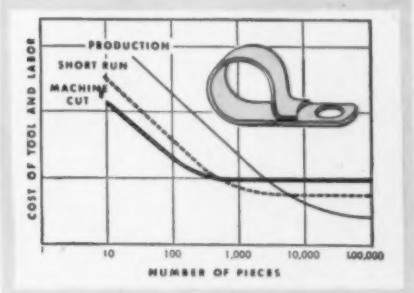
Short Run Method: As quantities increase (and depending upon the complications of contour, material, etc.) the economy of a temporary blanking die must be considered to eliminate the labor expense of machine-cutting. When this point is reached, manufacture is by the Short Run Method and the blanking is supplemented by other bench press operations. Here labor cost is at a medium level but a modest tool charge is incurred.



Production Method: As quantities increase the Production Method using standard dies with high speed automatic presses becomes more attractive. A relatively high tool charge can then be amortized over a great number of parts. Labor charge is negligible.

The Production Method as developed by the STAMPINGS DIVISION is offering unusual cost saving possibilities because of the new low-cost, full service Hecht-type die developed by the company for certain applications.

It is interesting to note that sometimes a very small quantity of parts would require a standard die because of complications or close tolerances or tough materials involved. Thus occasionally a very small quantity goes into the production classification.



LOWEST COST IS ASSURED WHEN SUPPLIER HAS ALL THREE METHODS

The illustrations show typical stamped parts along with relative costs and breaking points for each of the three manufacturing methods. Unless a supplier can offer all three, his costs cannot always be low. For a given quantity, only *one* method can be most economical.

ONE OR ONE MILLION PARTS FROM SAME SUPPLIER

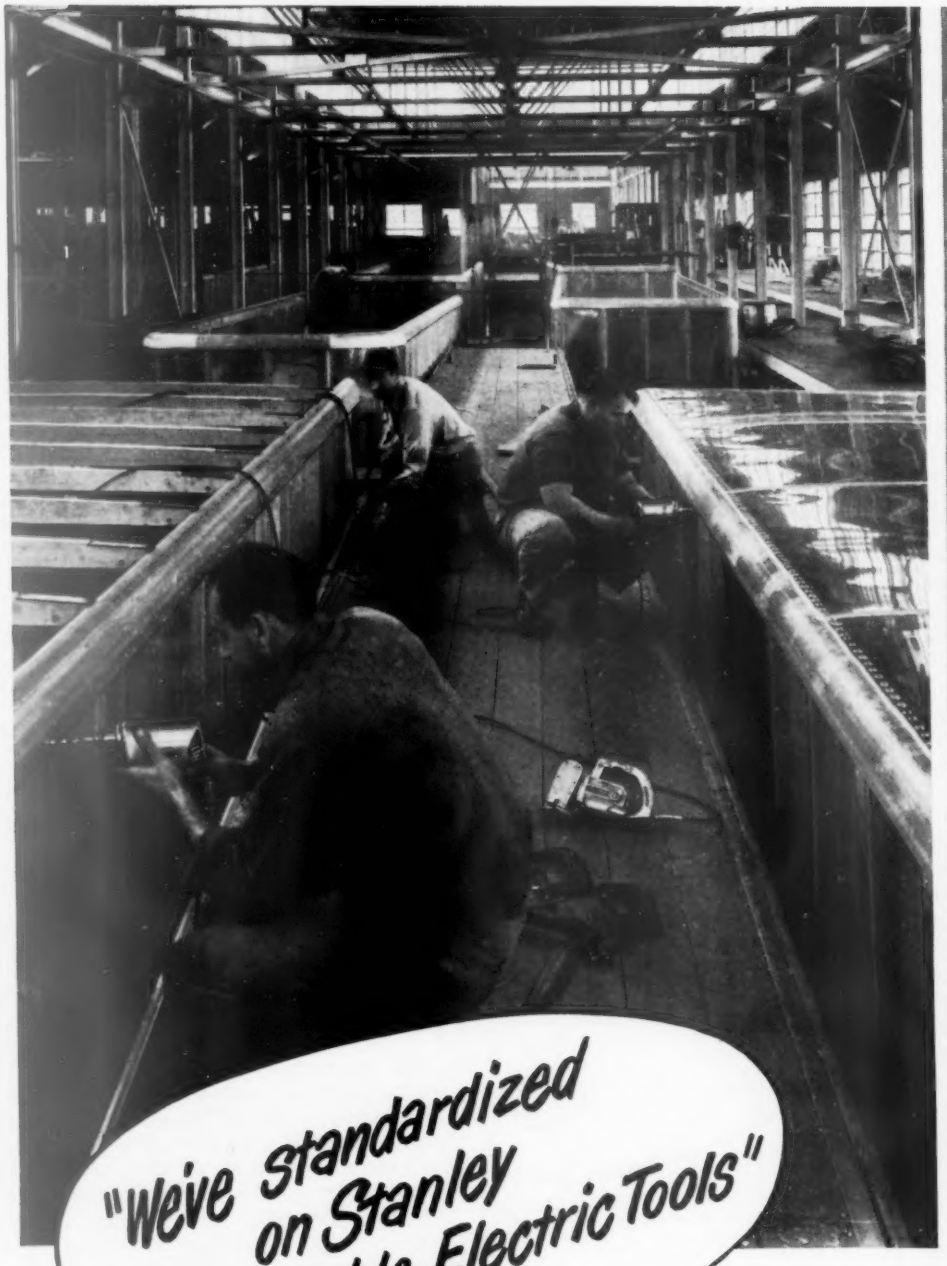
An important corollary to the above is that an experimental part in small quantities can be handled by the same supplier when full production quantities are needed

Further, it is important that a supplier be fully informed, if possible, on later or total requirements for a given part. As the charts point out, such information will affect manufacturing method and make possible cost reductions.

FURTHER INFORMATION AVAILABLE

An illustrated 12 page brochure describing in greater detail the methods mentioned above is available on request to the

STAMPINGS DIVISION
Laminated Shim Company, Inc
2410 Union Street, Glenbrook, Conn.



"We've standardized on Stanley portable Electric Tools"

reports —

BROWN EQUIPMENT & MANUFACTURING CO., Westfield, Mass.

leading manufacturer of aluminum trailer truck bodies.

"Building trailer truck bodies demands tools that will take hard work, rough handling all day . . . every day. Our experience has proved that Stanley portable Electric Tools give us just that kind of service." And Brown Equipment & Manufacturing Co., a division of Associated Transport Inc., the world's largest trucking concern, further states that "the savings made possible by using these tools have repaid their original cost many times over. Yes, Stanley portable Electric Tools are standard equipment with us."

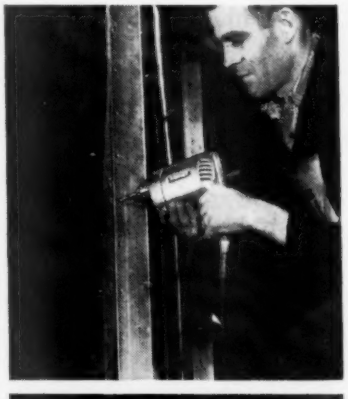
See your STANLEY distributor or write for information to: Stanley Electric Tools, 425 Myrtle Street, New Britain, Conn.



Stanley Sander-Grinders are used to smooth out rough trim joints.



Tricky cuts in extruded aluminum are made quickly and easily with Stanley Safety Saws.





Every day Stanley Electric Drills bore hundreds of holes in aluminum and steel. A continuing job that requires drills of sturdy design . . . long life.

STANLEY

Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

ECONOMIC LAW WILL PREVAIL

ONE of the very significant points demonstrated by the recent steel strike and the method and terms of its eventual settlement is the extreme vulnerability of the whole scheme of interrelated controls as conceived and administered by our governmental agencies.

The essential nature of controls is recognized, even by the most ardent proponents of the system, as an artificial economic veneer. Just how thin that veneer really is, was clearly shown. Eight weeks is a long strike in a basic industry, but it is a relatively short period in terms of our national life, or of any industrial or economic regime. Yet within that short period, the veneer cracked and the underlying economic forces asserted themselves.

The law of supply and demand contains three variables, and you can't tamper with any one of them without affecting the other two. Furthermore, these are not impersonal factors such as you can measure in terms of income available for spending or volume of natural resources and manufacturing capacity. Properly stated, this law says that at *any given price level*, a certain number of people are *willing to buy* and a certain number are *willing to produce and sell*. Bringing these three variables into balance is what makes a market. Put any one of them out of line, and the others must be free to move to a new adjustment or your market is destroyed.

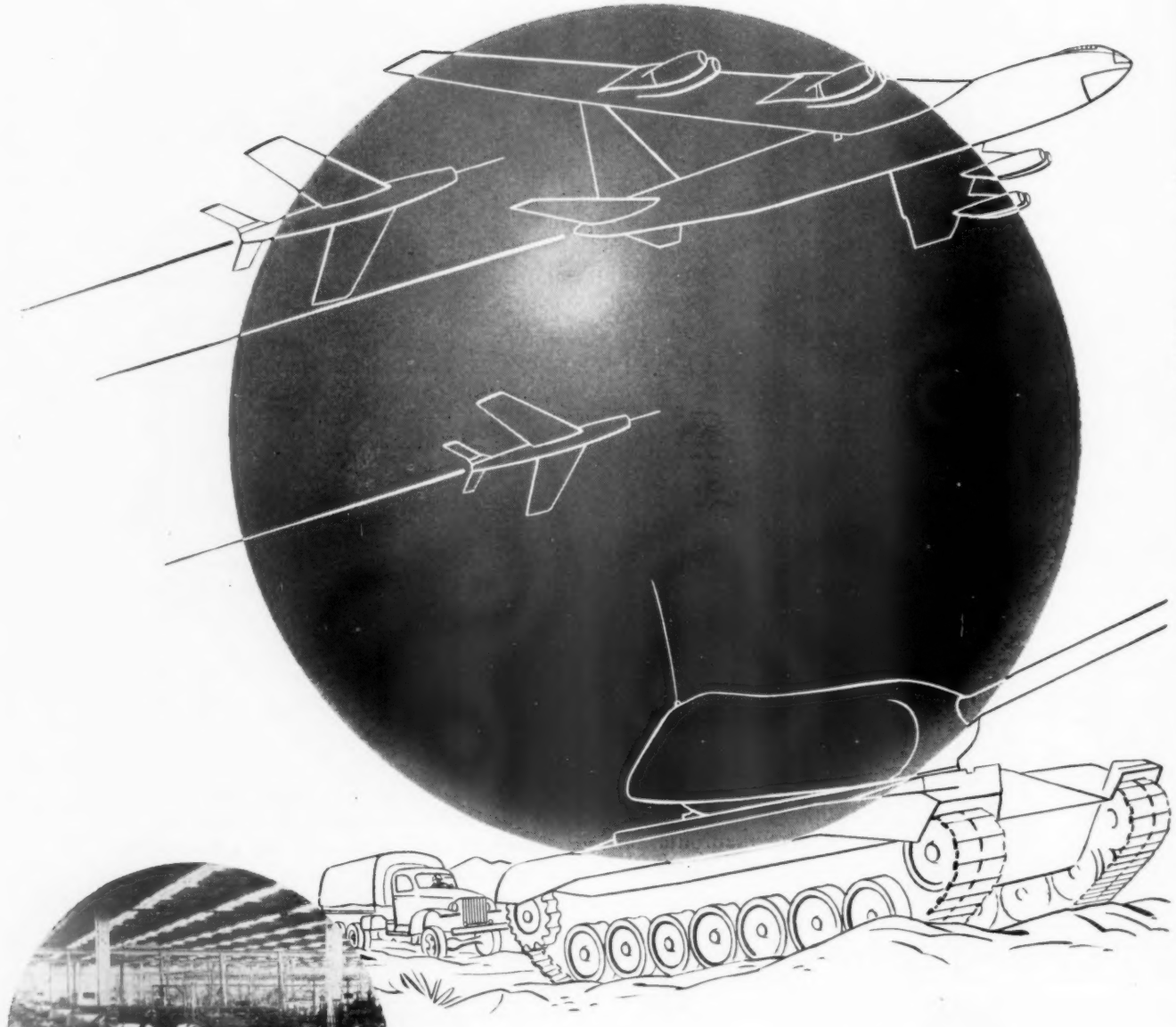
Even before the strike, rising costs and prices had made many potential buyers of consumer goods unwilling to buy. The curtailment of supply by strike promptly brought back the gray markets of opportunism, one of the more unsavory by-products of manipulation. The effort to raise costs without a corresponding increase in price made producers unwilling to sell. The inevitable result was a complete standstill, for the economic market had been destroyed. When that stalemate became untenable, a menace to the national safety and welfare, the price compromise by which it was settled was not a capitulation to the steel industry, but to economic law. The further effects on the value of the dollar and on effective consumer demand are yet to be assessed, for we have only succeeded in raising the entire equation into higher figures.

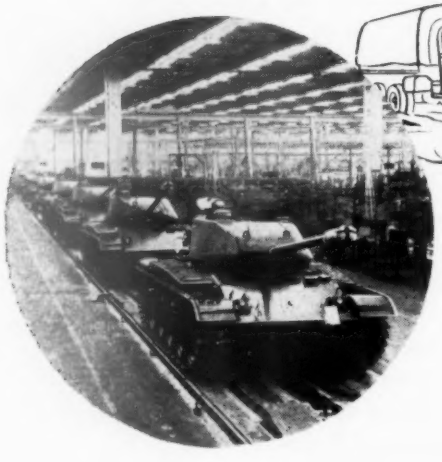
Too much of our official economic thinking has been predicated on the theory that unlimited spending is the answer to all our ills. It has been effectuated by means of an unconscionable and uneconomic siphoning off of the rewards of production, from worker and enterpriser alike, through taxes and inflation.

Failure on the part of government to recognize that economic law cannot be amended or repealed by edict has already cost us the services of more than one able administrator who might have achieved a workable balance. Persistence in that course can only lead to further fruitless waste of our magnificent national resources of materials, plant, and manpower. For the veneer of controls is mighty thin and already badly strained. Fundamental economic law will prevail.

Stuart F. Heinritz

SILENT SOLDIER FOR DEFENSE!





Factory, Farm and Fighting Front...

• On the Korean front . . . on farms deep in the heart of America . . . in factories geared to the needs of defense . . . New Departure Ball Bearings are worthy warriors.

• In a great variety of applications New Departures increase accuracy, permit higher speeds and resist *all* loads. They also reduce maintenance and help simplify design problems. New Departure engineers are available for everything from new design jobs to improvement of existing installations.

• The Great Ball of New Departure is the symbol of *engineering excellence* . . . leadership in research. Keep your eye on the BALL to be sure of your BEARINGS!

NOTHING ROLLS LIKE A BALL



NEW DEPARTURE

BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

Highlights

This issue's important features summarized for the busy reader



When growing pains forced the relocation of U. S. Rubber Company's purchasing department to provide more adequate space, the buying officials took advantage of their opportunity to devise the best possible **Purchasing Department Layout** for their new quarters. Result of their efforts is a plan that both segregates and coordinates the various commodity divisions, provides better working conditions, practically eliminates office traffic, and has notably increased efficiency. A picture story of the new offices appears on page 88. One of the unusual features is that, thanks to good neighbors, these "pent house buyers" look out upon a beautifully landscaped terrace garden nine stories above street level in the heart of Manhattan!

Another **Start from Scratch** was the assignment given to a West Coast buyer whose company established a new manufacturing division, to produce a new type of product. Starting with a 34-acre orange grove that had been purchased for the new plant site, and working without an office, a staff, or established sources of supply for unfamiliar requirements, it was his job to have the plant equipped and supply lines moving as soon as the construction contractor had erected the building. How he did it is told on page 94.



There's a new philosophy back of some of the current expansion of basic production. It's not just a case of stockpiling materials, but of **Stockpiling Power,** which is possible only by putting it to useful service. Outstanding example is the big new aluminum project in Quebec, where power from the rushing waters of the Saguenay River, that otherwise would be lost forever, is harnessed and stored in the form of ingot metal. One of our editors went to take a look at this mammoth operation. Turn to page 84 for a report on what he saw.

You would expect an organization that specializes in the development of efficient procedures and office equipment for other businesses to have a top grade **Purchasing System** for the procurement of its own requirements. And that's exactly what you find at the purchasing offices of Remington Rand Inc. The article on page 77 gives you the details of records, forms and procedures that have been applied by a company that is staffed by experts in this line and has had unusual opportunities and experience in analyzing purchasing procedure problems.



Salvage becomes pretty important when you are dealing with a commodity like **Industrial Diamonds,** at $5,000 a pound. And this is a commodity used wherever carbide tools and precision grinding are part of the production process. A 3-year campaign at Chrysler Corp. shows impressive results, and has established certain basic principles of diamond salvage that you may be able to apply with advantage. Turn to page 82.

This month's **Guest Editorial** (page 69) is contributed by Dan Donovan of Pepperell Mfg. Co., Vice President of the National Association of Purchasing Agents for District 9. Mr. Donovan stresses the fact that every act and word, however casual, can influence those with whom we deal—a good thing to be remembered by purchasing men, whose work constantly brings them into contact with others in their own companies and among their suppliers' representatives.

How can the principles of **Administrative Engineering** be applied to the purchasing department? On page 71 you can learn how this question is being answered in one progressive organization. The emphasis is on planning—for organization, programs and projects, policies and procedures; plus research, communication, and appraisal of results.

Are you making full use of these monthly departmental features compiled especially for the purchasing agent? The **Washington Previews** (page 13) keep you informed on current developments in governmental policy. Another section is devoted to **Office Equipment and Forms** (page 179). Informative **Trade Bulletins and Catalogs** listed on page 19 are yours for the asking.

COMING—IN NEXT MONTH'S ISSUE

When Requirements Are Unpredictable—The Mercury Market

"Immediate Delivery" Clauses—Ready for Cancellations



RYERSON

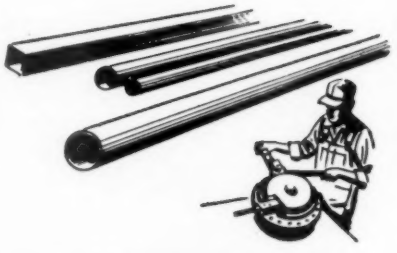
The Industrial P. A.'s Department Store

Here are a few of the many types of steel and related products on hand right now, ready for immediate shipment from your nearby Ryerson plant. Many may be used in place of products that are still hard to get. Check the items you need, and save time by ordering them next time you call Ryerson.



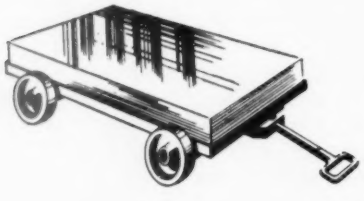
ALLOYS

Tested alloys of known hardenability, both standard and aircraft quality. Complete heat treatment guide with each shipment.



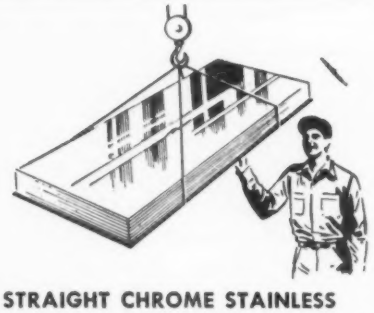
WELDED MECHANICAL TUBING

Hot and cold rolled, rounds and squares in a wide range of sizes. Consider cost. Substitute for seamless tubing.



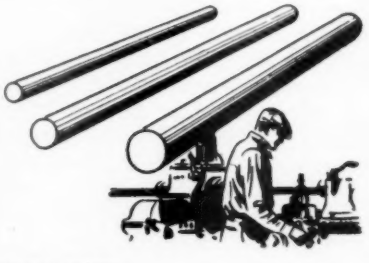
CARBON SHEETS

Both hot and cold rolled coming into better supply, especially cold rolled in the heavier gauges.



STRAIGHT CHROME STAINLESS

No allotment required for these stainless bars, plates and sheets—and they can often replace restricted nickel-bearing types.



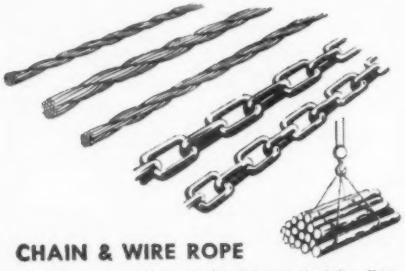
TOOL STEEL

Water, oil or air hardening steel. High in quality; economical in price. Hardening data with every shipment.



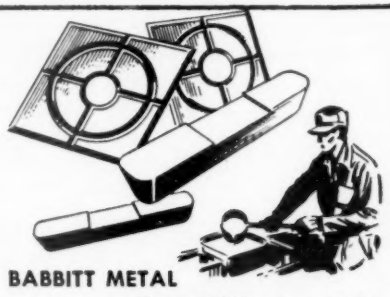
SAFETY PLATE

Strong, non-skid Inland 4-Way Safety Plate protects feet against slipping, floors against wear. Easily fabricated.



CHAIN & WIRE ROPE

Rugged, dependable TM chain, iron, steel and alloy qualities, furnished to order. High quality wire rope shipped from large stocks.



BABBITT METAL

Glyco Babbitt, an exclusive Ryerson product, has physicals equal to high tin Babbitts; costs substantially less and is unrestricted.

RYERSON STEEL

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND • DETROIT
PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

"I am but one, but I am one"

Purchasing is What We Make it

By Daniel G. Donovan



PURCHASING is carried on through a succession of daily contacts with a large number of people—our associates within the company and the salesmen who come to call on us. The sum of these contacts, the little words or acts that may seem casual, routine, and unimportant in themselves, make up our "public relations". Actually, these relations with other people are exceedingly important. "Public relations" is so far reaching that it is hard to measure. Like the arrow shot into the air or the pebble thrown into the pond, little do we know how far its reactions may go.

Have you ever had doubts as to the future of our country and our way of life? Have you felt insig-

Daniel G. Donovan is Director of Purchases of the Pepperell Manufacturing Company. From the executive offices of this century-old modern textile firm, in Boston, he directs the buying activities of its five manufacturing divisions, which operate in Biddeford and Lewiston, Maine, Fall River, Mass., Lindale, Ga., and Pepperell, Alabama. He is currently serving as Vice President of the National Association of Purchasing Agents for District 9, representing the New England, Western Massachusetts, Connecticut, and Rhode Island Associations, and is financial officer of the current Executive Committee.

Dan's business experience goes back to boyhood years, when he sold newspapers and spent his summers working in a grocery store. Upon his graduation from Burdett Business College in 1922, he spent seven years with Ipswich Mills, in the Accounting, Purchasing, and Cost Departments, leading up to an unusual finale. The company liquidated its business in 1929, selling all of its seamless hosiery manufacturing equipment to the All Russian Textile Syndicate. Dan's final assignment was to go to Moscow, where he spent nine months assisting the Russians install this machinery and getting it into operation.

Upon his return to this country in 1930, with his "Assignment to Moscow" completed, he joined the Purchasing Department of the Pepperell organization. Three years later, he became Director of Purchases.

He has been a member of the New England Purchasing Agents Association since 1930, and has served in all of its offices, including a term as President and National Director, culminating in his election to National office this year. He has been active in the work of the National Educational Committee, being District Chairman for New England for three years, and also a member of the Committee on Intra-Company Training.

Dan was born in Randolph, Mass., forty-nine years ago. He established his own family home in Milton, a residential town seven miles south of Boston. In town affairs, he is a member of the Finance Committee and in charge of the Supplies Division of the Civilian Defense Organization. His favorite hobby is golf, and while he does not reveal his average score, does admit to membership in the Hole-in-One Club. He is also an ardent baseball fan, cheering on the side of the Braves over the Red Sox in Boston's intracity rivalry.

nificant, weak, and sort of helpless when you tried to evaluate the weight of some of our current world problems? You have probably felt the same as I have, many times. After listening to a speaker at some convention or public gathering, outlining the wickedness and menace of Communism, or corruption in high places, waste in government, the burden of higher taxation, the trend toward State socialism, or the like, you have gone home and said to yourself, "What can I do about it?" There is an answer. It is expressed in the slogan of the Christophers: "You can do a lot. You can change the world."

The rugged individualist has lost some of his glamor and public acceptance as we move toward a more complex and interdependent society, toward a more paternalistic and socialistic state. But the fact still remains that it takes a collection of individuals to make a group, whether it be our family, our company, or our country. And the efforts and effects of that group will be the sum total of the individuals in it. Let us first do our own job right, and conduct ourselves as we see the right, and the subsequent reaction on others becomes automatically contagious.

Consider the number of men and women we meet every day, whether at home, in the office, on the bus, or almost anywhere. Everything we do or say can have an effect on others. Perhaps you can recall some remark of yours, made casually and without too much attention, which reacted on some listener so that months or years later it was repeated to you. We are apt too often to discount the effect we have on others. It is my feeling that our every contact with others has some reaction.

Think of the number of salesmen we meet every day. Is our reaction on them of the constructive type? Do they carry away the right kind of impression of our company? It is not necessary that we take time out to sell an idea, or consciously strive to make an impression, if we will but live and act our way of life.

If we feel strongly that every one should register and vote, let us say so—and let us be sure that we register and vote ourselves. If we feel that Communism is wrong and is undermining our principles, let us make it clear as to where we stand. Express yourself on the constructive side, and do not become discouraged if the tide appears for a time to go against your way of thinking. Follow the signpost that says to you, "This is the right way," and you will be doing your part to make that way prevail.

I have been greatly impressed by the philosophy expressed by Sir William Osler, the great physician, at a farewell banquet before he left for Oxford. He said:

"I have three personal ideals. One, to do the day's work well and not bother about tomorrow. The second ideal has been to act the Golden Rule, as far as in me lay, toward my professional brethren and toward the patients committed to my care. And the third has been to cultivate such a measure of equanimity as would enable me to bear success with humility, the affection of my friends with pride, and to be ready when the day of sorrow and grief came to meet it with courage befitting a man."

Our own profession, and our National Association of Purchasing Agents, are made up of thousands of individuals, working at the purchasing job in many different fields of industry and in many different communities throughout the length and breadth of the land. Purchasing is what we make it. Its accomplishments depend on how well each one of us meets his responsibilities. Its acceptance depends on how we conduct our activities.

The N.A.P.A. code of principles and standards gives us an excellent guide for our everyday business relationships. Let us take the time to examine it periodically to see if we are on the right course to further those standards.

The individual is still supreme. As each of us takes on additional responsibility and progresses in our purchasing work, we contribute to our Association and all other group activities and objectives. And the further result of this is that the individual, in turn, becomes stronger and more independent.



"So the steel shortage is over, and I have the rare privilege of renewing my acquaintance with good old Bings, whom I haven't seen since his company cut my allotment in half and shipped me only half of that."

Management Principles and Planning Applied to the Purchasing Function

By John B. Joynt
Manager, Administrative Engineering Dept.
American Enka Corporation
Enka, N. C.

Address at the quarterly meeting of the Carolinas-Virginia P. A. Association, Asheville, N. C., June, 1952.

AT American Enka, purchasing is a part of management, as in my opinion it should be. As such, it carries some very important management responsibilities. One of these is "management improvement"—improving our organizational structure, better planning, improved policies, streamlined procedures, coordination of interdepartmental interests, effective handling of our corporate relationships and our outside relations—in short, doing the best possible job.

Just how important is purchasing in corporate management today? At American Enka, it is our largest single expenditure. Last year our sales amounted to $52 million. More than $20 million of this was spent for materials and supplies; 38% of what we took in went out through procurement channels.

That is one of the reasons why, when we set up our management improvement program two years ago, we gave supply and procurement prime importance. The things that have been accomplished, in six main areas, have been worked out by our purchasing agents and procurement planning section under the general direction of our Director of Purchases.

Organization Planning

In connection with purchasing, we should think of organization planning in terms of the entire procurement function, in its broadest sense. This process begins with planning our requirements and ends with paying for what we have bought. It involves purchasing, supply, and warehousing functions throughout the company. It touches on basic corporate plans affecting procurement. To insure an effective purchasing operation, it is essential that all aspects of the procurement job be considered as part of organization planning.

Major functions as well as specific responsibilities throughout the entire company which relate to the procurement function should be clearly defined and reduced to writing. We want to make certain "who" is responsible for "what". Each individual with a part to play in procurement must be charged with those responsibilities logically falling to him. For example: Who is responsible for determining requirements, specifications, the most economical quantity to buy, etc.

Relationships with other departments of the company and with our suppliers must be set up properly if we are to do an effective procurement job. This may require considerable coordination within the company; it may require the help of your organization planner, if you have one. Nevertheless, leadership in the perfecting of this organizational structure relating to purchasing seems to be the logical responsibility of the head of the Purchasing Department.

At Enka, we have spent considerable time not only in developing these specific responsibilities which bear on procurement, but in perfecting our Purchasing Department's organization structure as well. We have a line-staff type of organization, and have given our Director of Purchasing staff responsibility over our stores operations in the plants, other than on finished product. We have organized our Purchasing Department on a commodity basis, with each buyer specializing in the procurement of particular commodities.

We have set up a procurement planning section which, in effect, is the "go-between"—between our

stores and other departments which requisition large quantities of supplies, and our purchasing agents. This section coordinates our requirements and procurement planning, and the supply aspects of our construction, alteration, and plant repair work. This job involves consideration of requirements, specifications, substitutions, standardization, etc.

In applying management improvement techniques to our purchasing operations, we placed organization at the top of the list, as we felt that a sound organizational structure was basic to later steps. We may make additional improvements in organization, but for the most part they will be by-products of our policy and procedure studies.

Program and Project Planning

Following the determination of responsibilities, we believe that every department of the business, including purchasing, should have a long-range plan. They should plan as far ahead as possible. Such planning would be divided into several major categories:

1. Administrative planning in connection with the purchasing function.
2. Procurement planning, which involves setting up requirements for the future.
3. Research into new products.

In this connection it is important to have a proper planning concept, particularly insofar as procurement planning is concerned, since that is the heart of the purchasing operation. No purchasing agent can look forward without knowing what to look for. Only when he is informed of company plans and requirements can he buy to the best advantage. Inventory planning, also, should be integrated with purchase planning.

Traditionally, many purchasing departments have been considered as service departments to production, maintenance, and engineering, and they do perform a very valuable service. Many companies do a good job in planning raw material requirements, and at the same time forget about everything else. They believe that if they send out inquiries and issue orders as requisitions are submitted, they have fulfilled their procurement responsibilities. They place greater emphasis on getting the order issued the same day the requisition is received than in planning a long-range procurement program.

This concept is outmoded and costly. Purchase planning must be coordinated with overall company planning, maintenance planning, planning of changes in plant and equipment, etc. Where this *is not* done, there is almost inevitable delay in procurement, rush items, obsolescence, and higher costs. Where this *is* done, the Purchasing Department becomes a significant factor in strengthening the company's profit position.

Sound procurement planning provides a foundation for good purchasing, and a good supply and stores operation. Without this, our supply requirements cannot be met properly, and procurement and supply costs will be excessive. Management expects its Purchasing Department to do this planning.

The Purchasing Department is in a strategic position to assume staff responsibility and leadership for planning of requirements, developing a standardization program, planning of substitutions and related factors involved in the administration of a sound and economical supply and procurement system.

The department should initiate and organize ways and means to reduce procurement costs, should work with plants and other requisitioning departments where opportunities exist for cost reduction, and should create cost consciousness throughout the company by keeping in the forefront the cost factors involved in procurement.

Some of the factors in determining requirements and right order quantities are:

1. Knowledge of current and future needs of the entire company, not just certain parts.
2. Knowledge of costs of supplies, giving consideration to quantity purchases, discounts, freight charges, etc.
3. Cost of acquisition (all procurement steps beginning with the planning of what is needed, up to and including placing the item on the stock room shelf).
4. Cost of maintaining supplies in stores (including return on invested capital, taxes, interest, insurance, supervision, depreciation, obsolescence, etc.).
5. Lead time and availability.
6. Storage facilities.
7. Possible price changes.
8. Possibility of obsolescence and advance knowledge of contemplated changes in plant or equipment which will affect procurement of supplies.
9. Standardization and substitution of items.
10. Proper quality.
11. Knowledge of suppliers, including their reliability.

Our Purchasing Department at American Enka has a number of planning projects. The basic objective is to plan all material requirements so that purchases are made economically, efficiently, and expeditiously as possible. Through such planning we hope to:

1. Reduce the prices of items purchased.
2. Reduce inventory.
3. Develop new supply sources.
4. Improve planning and budgeting.
5. Save in freight charges.
6. Lower administrative costs.
7. Standardize parts and supplies.
8. Improve supplier relationships.
9. Operate more smoothly under government controls.

We always have had good procurement planning for raw materials, and we are now applying the same planning principles to other than raw materials. Our procedure is in the experimental process, but we hope to let contracts in the near future for thousands of items now bought on an individual order basis.

This type of planning will improve the entire procurement operation. When our stores and other requisitioning departments sit down together with our Purchasing Department and plan their requirements together, we are bound to have fewer problems of short supply, fewer rush items, fewer purchase orders, less paper work, and a more steady flow of supplies. The end product of our improved planning is an annual supply program covering our annual requirements for all materials and supplies, one year ahead.

Other planned projects include the development of standard nomenclature and specifications in cooperation with our engineering departments, the development of a manual of specifications and stock catalog, etc.

As a result of this sort of planning, spearheaded by the head of the Procurement Planning Section in our Purchasing Department, we have much better control over the various aspects of procurement. The head of this section is, in effect, a materials controller for the company. At Enka, purchasing means more than merely buying— it means the management of buying functions.

Sound Policies and Procedures

A logical responsibility of our Purchasing Department is to formulate the company's policies and procedures relative to procurement. Obviously this must be done in coordination and cooperation with other departments affected. Unless our policies are fixed, reduced to writing, and understood throughout the entire company, there is bound to be misunderstanding, misinterpretation, and a certain amount of confusion.

But we must have more than sound procurement policy. We must have systems and procedures to make our policies effective. To develop and install these procedures is a responsibility of our Purchasing Department. Procedures, too, should be reduced to writing, at least those which are interdepartmental. In the larger companies, it would be desirable to have a Policy and Procedure Manual, which would be made available to all departments participating in the procurement function.

Analysis of a company's procurement policies and procedures, with all the related implications, is no small task. We undertook such a job at Enka a year ago, and it will be another year at least before all the improvements which we have developed are installed and in operation. In all, this study resulted in 87 separate improvements within the company. Many of these were outside the Purchasing Department, since it is tied in with the Controller's Department, Traffic, Engineering, and General Stores. In connection with this project, the Administrative Engineering Department, which is responsible for overall procedures planning, assisted the Purchasing Department.

During the course of this study, we prepared policy and procedure circulars to effect individual improvements as they are developed. Each department affected by changes participates in the development of these improvements. Our objective is to secure unanimous concurrence in any new proposal before it is placed into operation.

Our policy statements cover such things as selecting sources of supply, contacts with suppliers, setting forth who can make commitments outside the Purchasing Department, determining whether we buy from outside sources or manufacture items within the plant, etc.

Since many of the procedures involved other departments, we covered such things as inbound and outbound shipments, requisitioning, storage, receiving, and issue. We decentralized certain operations to our plants.

We greatly simplified our expediting procedures. At one time we were expediting nearly 60% of everything we purchased. This was a laborious job, and the continuous flow of follow-up requests was not conducive to good supplier relationships. We were following up our stores items, for example, entirely on the basis of promised delivery date, even though we didn't need the items immediately.

So we switched the responsibility for initiating expediting action to our warehouse, where we keep our stock records on Kardex. Now they prepare a little 3-part form when the stock is low. One copy is kept by them. Two go to Purchasing, where they are checked and noted on the purchase order. Both these copies go to the supplier. One he keeps, and the other he returns to Purchasing with shipping information which is noted on its records and passed on to Stores.

Some one will say, "But you can't do that; expediting is a purchasing function." That is true, and Purchasing is still responsible. We have merely brought the Stores Departments into the picture to cut out unnecessary expediting and to reduce paper work.

We are now working on a new receiving system, with a master form to be prepared in the Purchasing Department from a traveling requisition. At present, the job of keeping track of what is received is done in the receiving unit, by our Kardex clerks, in the Purchasing Department and Controller's Department. The new system will greatly simplify our paper work.

In establishing policies and procedures, we must at all times permit flexibility to meet changing conditions. No policy or procedure should be so rigid as to prevent the purchasing agents from negotiating freely with suppliers. Policies and procedures must be worked out with other departments and, if they affect other areas of the business, be concurred by such management officials. But even though others may be involved, it is a management responsibility of the Purchasing Department to spearhead their introduction in any area where purchasing is concerned.

Research

Too frequently we regard research as some long-haired, long-range task. Actually it is something that should be done in every department of the company every day. Research is not confined to our Research Department. It is just as important in purchasing as in any other phase of our business.

The President of our company recently stated: "It is morally wrong to decide something on the basis of opinion that could have been decided on the basis of fact." This certainly applies to purchasing.

Just keeping abreast of new developments in products and processes is in itself a tremendous job. Too frequently we ignore new supply channels, and follow the line of habit and least resistance. We become complacent in our buying job —and this complacency sometimes persists even to the head of the purchasing organization.

We must keep alert to what is new, through purchasing research. We cannot be procurement isolationists in an atomic era and expect to do an effective job.

Communication

By injecting the word "communication", you may think we are getting over into the Industrial Relations field. Perhaps "understanding" would be a better word. The important thing is this: In order for our entire supply and procurement function to click, it is necessary that the policies, procedures, and the operating plans that relate to supply and procurement be understood by all departments of the company that are a part of it.

How this can best be accomplished is an individual matter for each company. At Enka, as previously stated, we issue policy and procedure statements. We are now considering an additional step—a monthly procurement meeting for our major requisitioning departments, our Director of Purchases, and our buyers. The purpose of these meetings will be to get our purchasing people, stores people, and engineers together to discuss common problems.

Appraisal of Results

The appraisal of results is an important part of management's job. We are not thinking of any mathematical approach. In business today we have management audits. A management audit is the same as a money audit in principle, but its scope is much broader. It involves an appraisal of organization, plans, policies, programs, procedures, processes, utilization of personnel and equipment, training and development of people—all the factors which make up good management.

Management audits usually are applied to a particular department. They may be conducted by an outside consulting firm or within the company. We have not yet undertaken this program, but plan to do so. When we do, we expect it will be done on the inside, with the Administrative Engineering Department and the departments concerned participating.

The first step is to determine the appraisal factors. The head of the department and the one to whom he reports are best qualified to do this. As part of management, they should be thinking about their own operations; furthermore, self appraisal should stimulate improvements. At Enka, we take the position that department heads should set their own goals, through program planning, and continuously evaluate their own progress.

We don't have precise standards for our purchasing operations as we do in engineering, for example. Some of the factors are tangible; others are somewhat intangible. For the most part, it is a matter of comparing present performance with past performance.

Among the appraisal factors are:

1. *Availability of Supplies*—"Enough and on time". We should consider such things as machines or personnel idle because of lack of supply; extent of successful substitutions; number of rush orders; number of items we had to expedite; number of rejects requiring the return of materials, etc.

2. *Cost Factors*—Cost to acquire and to maintain stock; savings through discounts and quantity purchases.

3. *Inventory Factors*—Most economical order quantity; number of stock items out; total value of inventory turnover rate; procurement planning; obsolescence.

4. *Administrative Factors*—Cost per order is one factor, but these costs will vary widely; the important thing is total administrative cost. Effectiveness of purchasing policies and procedures can be determined by a step-by-step analysis. Capturing of discounts to which we are entitled is also to be considered.

5. *Standards, Specifications and Substitutions*—Are tolerances too high? Have we discussed with our suppliers how minor changes might materially reduce their costs, with savings to us? Are we doing necessary purchasing research toward getting products which are better than those we now use?

This is not intended to be a complete check list. It does point out some of the things to include in appraising procurement results.

We are applying these management principles to all departments at Enka. As a result, we are able more and more to practice "management by exception". When we have sound organization and policies, good planning and procedures, and an effective means of appraising results, management need only bother with the deviations from this pattern. Our top people then will have more time to plan ahead, to think about the broader and more important things, while the everyday operations follow the established pattern.

We want our purchasing agents to apply this principle to their work. Through proper organization, sound policies and procedures, this can be accomplished.

What We Expect Of Our Purchasing Organization

We want *adequate and reliable sources of supply.*

We want a *steady flow of materials* at the most economical order quantity.

We want *planned requirements,* so that the most acceptable types of material controls can be applied.

We want our purchasing agents to do *necessary research,* to keep alert to new products and developments.

We want *sound policies and simple procedures,* understood by all departments.

We want a *minimum of paper work.*

We want a well integrated and *sound organization structure,* with responsibilities clearly fixed.

We want good *procurement planning,* coordinated with overall company planning.

We want our Purchasing Department and our buyers to take a *company-wide viewpoint,* and to take the initiative in bringing about this attitude throughout the company.

We want to *create good will,* both inside and outside the company.

We want our purchasing people continually to *increase their purchasing know-how.*

Should INDUSTRIAL OPERATIONS Be Further DECENTRALIZED?

Deliberate decentralization of industry — as contrasted with the natural expansion of a single plant as business increased — has been receiving a lot of attention. If a general trend toward the former is developing, it may have important effects on industrial buying. We asked purchasing agents in key areas of the country how far decentralization has advanced in their territories and what it means to their operations.

P.A.'s In These Areas Answered These Questions	Middle West	Southeast	Southwest	Pacific Coast
				
❶ Have you noted any significant examples of plant relocation or decentralization of manufacturing operations in your area since the war?	Several 31% Few 56% None 13%	Several 59% Few 37% None 4%	Several 43% Few 49% None 8%	Several 63% Few 32% None 5%
❷ If so, is it your opinion that these instances represent merely individual policy decisions or a distinct industrial trend?	Individual 40% Trend 60%	Individual 18% Trend 82%	Individual 28% Trend 72%	Individual 27% Trend 73%

P.A.'s In These Areas Answered These Questions	Middle West 	Southeast 	Southwest 	Pacific Coast 
❸ As a buyer, have you noted any specific advantages for your own operations from such decentralization?				
a. New sources of supply?	a Yes 51% No 49%	a Yes 72% No 28%	a Yes 61% No 39%	a Yes 65% No 35%
b. More active competition?	b Yes 51% No 49%	b Yes 60% No 40%	b Yes 65% No 35%	b Yes 68% No 32%
c. Better relations with suppliers?	c Yes 58% No 42%	c Yes 65% No 35%	c Yes 64% No 36%	c Yes 66% No 34%
d. Better service from nearby sources?	d Yes 66% No 34%	d Yes 84% No 16%	d Yes 73% No 27%	d Yes 85% No 15%
e. Lower prices due to lower manufacturing costs?	e Yes 25% No 75%	e Yes 38% No 62%	e Yes 24% No 76%	e Yes 24% No 76%
f. Savings in transportation costs?	f Yes 65% No 35%	f Yes 80% No 20%	f Yes 68% No 32%	f Yes 67% No 33%
❹ In your opinion, is such decentralization a sound management policy?				
a. For individual company expansion?	a Yes 86% No 14%	a Yes 91% No 9%	a Yes 94% No 6%	a Yes 88% No 12%
b. For industrial development of specific areas?	b Yes 85% No 15%	b Yes 90% No 10%	b Yes 97% No 3%	b Yes 91% No 9%
c. For the national economic welfare?	c Yes 85% No 15%	c Yes 93% No 7%	c Yes 97% No 3%	c Yes 95% No 5%
d. For national security?	d Yes 93% No 7%	d Yes 91% No 9%	d Yes 99% No 1%	d Yes 97% No 3%

WHAT THEY SAY

Asked the question "In what industries would you like to see greater decentralization and plant relocation in your particular area?", the respondents answered with an impressive list of industries for all four regions.

Those in the Midwest had the least number of recommendations, with these industries being named most often (in order of preference): chemicals, steel and steel fabricating, automotive, paper, rubber, and screw machine products. Other choices included: electrotyping, printing, bearings, brass mill products, grinding wheels, plastics, electrical, aircraft, transmission supplies, stampings, containers.

Suggestions for decentralization of forty-two different industries were made from respondents in the Southeast, the largest number from any region. Steel and chemicals led all the rest, followed by electrical products and equipment, machine tools, screw machine products, automotive products, stampings, hardware, textiles, electronics, tubing and oil field equipment. Others mentioned included rubber, non-ferrous metals, plastics, springs, aluminum, abrasives, bearings, cartons and containers, paint and varnish, plating, foundry, and tools.

The Southwest called for plant relocation in its area of thirty-two industries, and generally followed the pattern of the Southeast. Steel decentralization, however, was in much greater demand. Oil field equipment and aircraft specialties got particular mention, as did valves and fittings, and rubber. Oil and motors were also mentioned several times.

As in other regions, steel decentralization was far and away most popular on the Pacific Coast, which came up with forty different recommendations. Machine tools and plant machinery were fields also receiving a large number of notices. Chemicals, electronic equipment, cutting tools, non-ferrous mill products, glass and glass products, paper and paper products also received numerous mentions. Cellophane, optical goods, copper, carbon black, were among the many others mentioned.

A system devised by systems experts



Photo by Jean Raeburn, N. Y.

Purchasing at Remington Rand Inc.

By Frank J. Atwood
Vice President and Director of Procurement
Remington Rand Inc.
New York

THE procurement activities of Remington Rand Inc. are similar to those of any large corporation where a large variety of materials must be on hand on time for production or for resale at many widespread locations.

Organization

The Procurement Division, embracing the operations of the Purchasing and Traffic Departments, is headed by the Director of Procurement, who is also a Vice President of the company, thus providing appropriate representation for the division at management level. The responsibilities of the Director of Procurement, who is assisted by three Assistant Directors of Purchases and a General Traffic Manager, encompass:

Purchasing of raw materials, manufactured parts, supplies, equipment and products for resale.
Coordination of established purchasing policies, procedures and government regulations between all Remington Rand Locations.
Disposal of scrap, surplus and obsolete materials and equipment.
Purchase specification control.
Control of inventory levels of purchased materials.
Transportation of all purchased products from suppliers.
Distribution of finished products to customers throughout the world.
Participation in traffic rate hearings.
Handling claims with transportation facilities.
Compilation of statistical data pertaining to Procurement.

The Director of Procurement is responsible for these functions to the Senior Vice President in charge of production activities. This establishes a direct line of coordination with production requirements and planning.

A staff of buyers at the home office in New York is supplemented by local buyers at plant locations and at certain home office departments, such as the Advertising Department, who are delegated buying functions. Similarly, a staff of traffic specialists at the home office is supplemented by traffic managers at the plants. Buyers are assigned purchase responsibilities for specific commodities and periodic adjustments are made to balance work loads which has the advantage of insuring greater flexibility among the buying staff.

Purchasing Policy

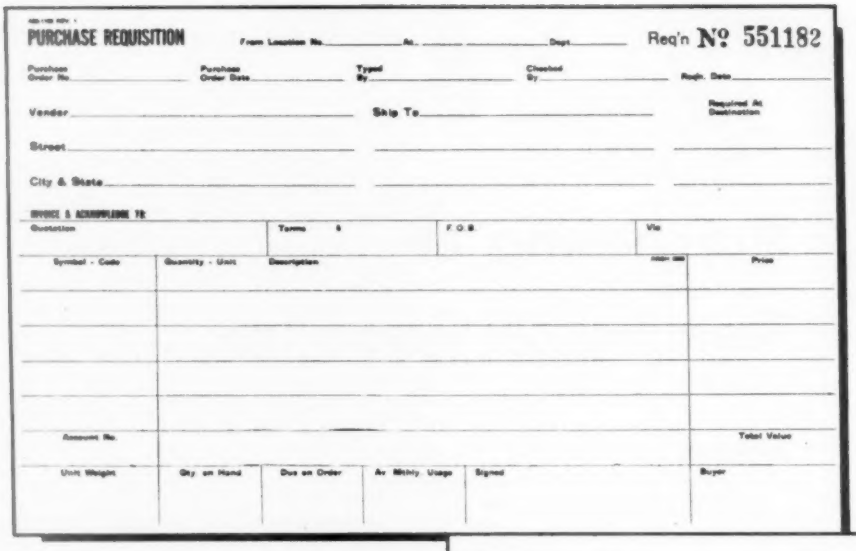
Remington Rand's aim is toward controlled decentralized placement of orders; 75% to 80% of the total number of orders presently being issued are by local buying staffs. Placement of orders of small dollar value is done locally, and other local placement of orders is accomplished under specific authorization from the central office of the Purchasing Department in New York. These authorizations, which normally specify vendors, prices and terms, are issued when it is considered that placement of orders by local buyers is practical and advantageous from the view point of over-all economy. Examples of conditions favorable for issuance of authorization are:

Repetitive requirements for standard supplies which usually are catalog listed by the manufacturers. Data is furnished local buyers for the pricing of orders.
Company-wide requirements of items are covered by contracts which establish the price, terms of payment and delivery.
Operations requiring special services to be performed with a minimum of delay. Reliable sources are located which maintain a continuous quality of service. These services are usually of a nature that require direct contact between the supplier and the point of use.

The practicability of order placement by the local buyer is obvious in each of these examples. The central office of the Purchasing Department continues to study purchase conditions which, among other benefits, provides a basis for determining when local order placement is desirable.

Negotiation and consummation of contracts are accomplished in the central office. This procedure goes hand in hand with the company's policy of controlled decentralized buying. It allows for contractual coverage from a central point for all plants involved and yet allows for order placement at the point of use, with the most expeditious handling of paperwork.

Policies governing Remington Rand's purchasing are outlined in a manual and supplements thereto, which include such policies as:



PURCHASE REQUISITION

Req'n № 551182

Vendor

Ship To

Street

City & State

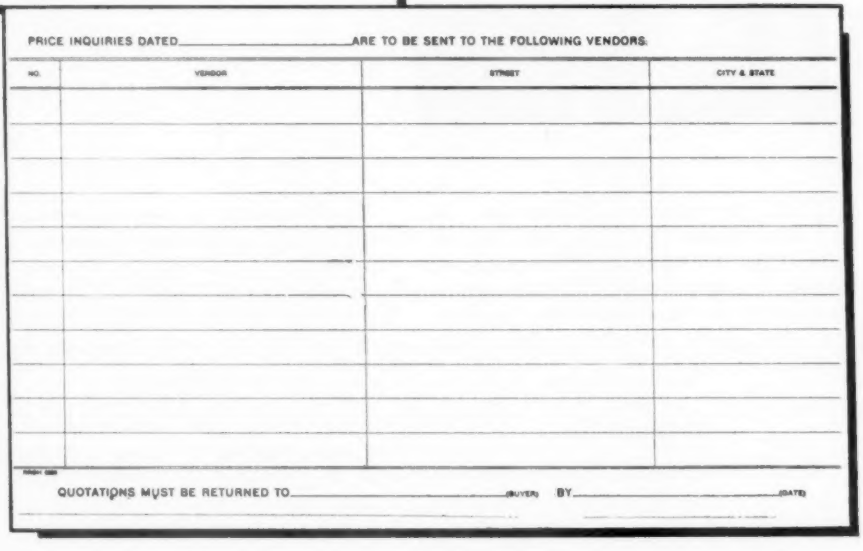
Quotation | Terms | F.O.B. | Via

Symbol - Code | Quantity - Unit | Description | Price

Account No. | Total Value

Unit Weight | Qty. on Hand | Due on Order | Av. Mthly. Usage | Signed | Buyer

The Purchase Requisition, a working form, is exceptionally complete,. showing inventory, traffic, and invoicing information, distribution of accounts, and name of buyer handling the commodity. Reverse side is used by buyer to indicate suppliers who will be invited to bid.



PRICE INQUIRIES DATED _____ ARE TO BE SENT TO THE FOLLOWING VENDORS:

NO.	VENDOR	STREET	CITY & STATE

QUOTATIONS MUST BE RETURNED TO _____ (BUYER) BY _____ (DATE)

To purchase in amounts consistent with established inventory levels.

To be alert for new materials, satisfactory substitute materials and new sources of supply, coordinating such items with the engineering staffs responsible for changes of specifications.

To secure competitive quotations except when sources and firm prices have been determined and apply currently.

To award orders and contracts on the basis of the supplier's ability to deliver quality merchandise at a fair price, with our personnel accepting no personal favors or gratuities.

To maintain equitable and courteous relations with suppliers.

Inventory Control

The Director of Procurement is responsible for insuring that inventory levels of purchased production and supply items are maintained in accordance with established policies. This is accomplished by advising the various plants of the policies in effect and requiring that requisitions show the quantity of material on hand, the quantity on order, and the average monthly usage. It is the responsibility of the Assistant Directors of Purchases to insure that purchases are not made which will cause inventory levels to exceed those authorized.

Inventory levels are adjusted to conform to government regulations, small dollar purchases, minimum order quantities, and quantity price discounts. Consideration is given in making inventory adjustments to the amount of excessive inventory that will be involved and to the possibility of design changes or changes in operating methods which might obsolete the material or supply items involved.

Purchasing Mechanism

The Purchasing Department periodically publishes a listing of major commodities, by classes, to inform all interested persons of the approximate amount of time required for procurement from the time a requisition for purchase is initiated until the material reaches its destination. This "lead time" list is considered particularly important in today's market with the ever changing procurement picture. Using this list as a basis, "order points" are adjusted on stores record cards to indicate to the stores clerk when he must initiate requests to purchase for replenishment of stock. Other factors which affect this order point, in addition to lead time, are fluctuating production rates, model changes and special order materials.

Requests to purchase which are originated in the plants by the stores clerks are forwarded to the local buyers, where it is determined whether the items will be purchased locally under dollar value authorization for local purchase, whether local orders will be issued in accordance with buying instructions from the central office, or whether the purchases are to be handled by the central office.

When a purchase is to be handled by the central office, a requisition is prepared by the local buyer, two copies of which are forwarded to the central office, one to be used in the purchasing process and the other to be held as a control copy for checking and follow-up purposes while the original is in process. A third copy is retained in the local buyer's office and a fourth sent to the stores clerk.

The original copy of a requisition, when received in the central office, is referred to the buyer having this commodity assignment, after attaching thereto the appropriate specification and record of past purchases in card form. The buyer, having reviewed these records and

existing buying instructions, and from his knowledge of the item, determines whether the item is to be purchased on a competitive quotation basis or against an existing contract or price agreement.

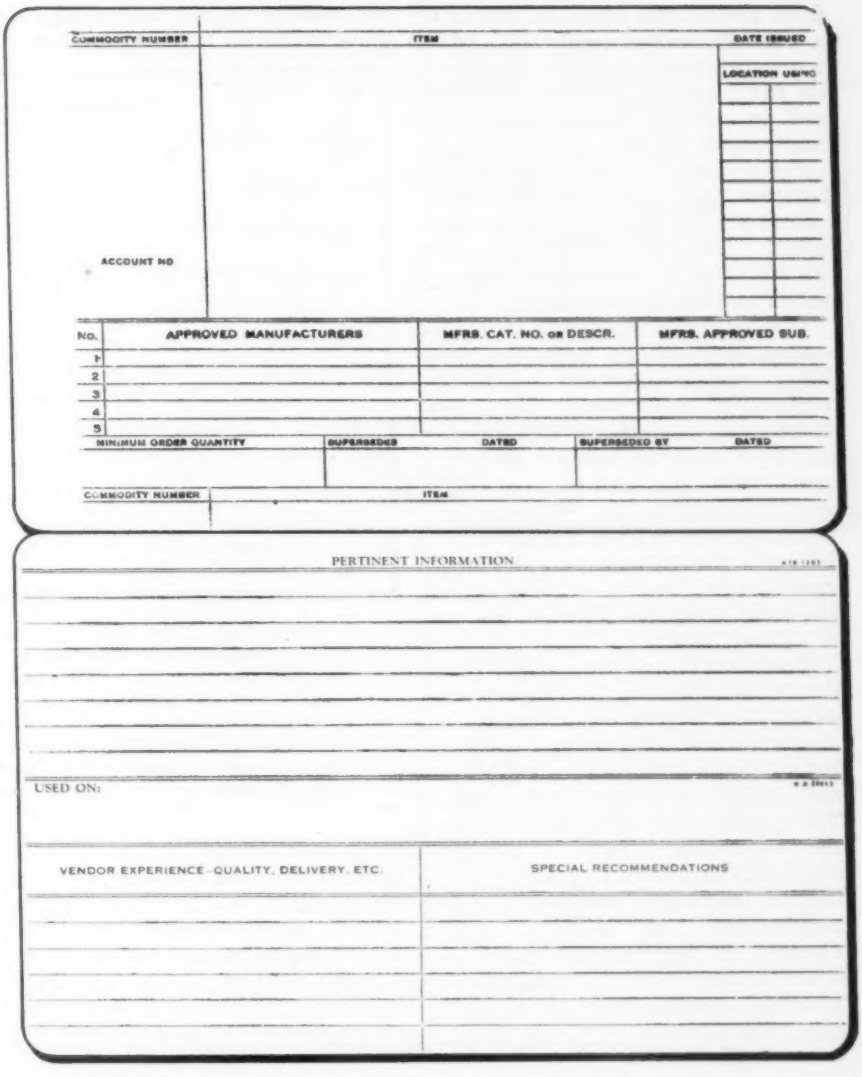
If competitive quotations are indicated, the buyer specifies on the reverse side of the requisition form those suppliers to be contacted in writing, or he may make telephonic inquiries. In the former case a central typing section prepares inquiry forms which are sent in duplicate to suppliers requesting that one copy be returned with the supplier's quotation. As quotations are received, the buyer reviews them and determines the vendor based upon price, quality and delivery, after which a purchase order is prepared.

The preparation of the purchase order is done by the central typing section from instructions entered on the requisition by the buyer and from data contained on the specification card. Purchase orders are priced with an extended total value and a shipment routing is specified on the order.

Seven copies of the purchase order (of which approximately 130,000 were issued during 1951) are typed, using Remington Rand Electri-conomy typewriters on snap-out style forms. Distribution of copies issued by the home office is as follows:

Two to vendor, one of which is to be returned to the appropriate plant as acknowledgment of receipt and acceptance of the order. The acknowledgment provides for vendor's delivery promise, which is important in the follow-up activity.

One to the appropriate accounting section for use in invoice verification.


COMMODITY NUMBER | ITEM | DATE ISSUED

LOCATION USING

ACCOUNT NO

NO.	APPROVED MANUFACTURERS	MFRS. CAT. NO. OR DESCR.	MFRS. APPROVED SUB.
1			
2			
3			
4			
5			

MINIMUM ORDER QUANTITY | SUPERSEDES | DATED | SUPERSEDED BY | DATED

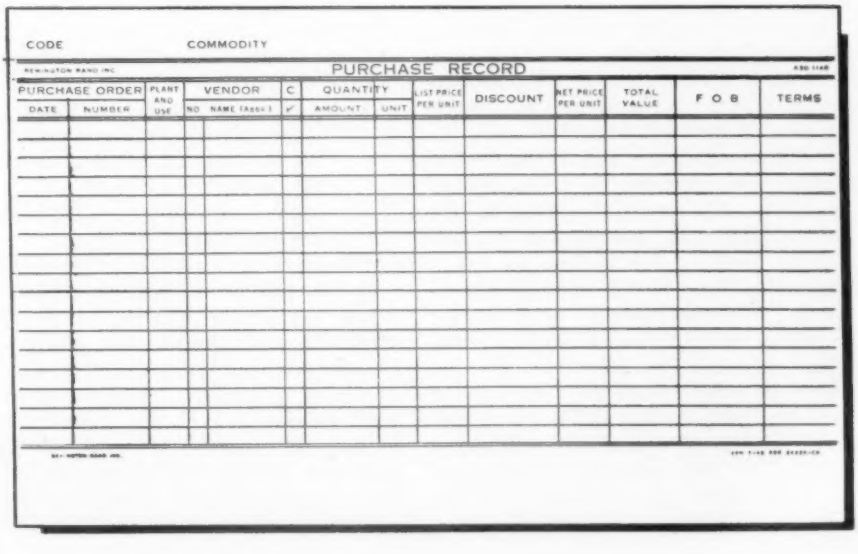
COMMODITY NUMBER | ITEM

PERTINENT INFORMATION

USED ON:

VENDOR EXPERIENCE - QUALITY, DELIVERY, ETC.	SPECIAL RECOMMENDATIONS

Specification Record gives accurate ordering description of the commodity and list of approved sources. Reverse side contains supplementary information regarding product and vendors, to aid buyer in selecting source of supply. The Purchase Record is of the conventional type, ruled both sides, and filed with the corresponding specification card in a Kardex file.


CODE COMMODITY

REMINGTON RAND INC. PURCHASE RECORD

PURCHASE ORDER DATE	PURCHASE ORDER NUMBER	PLANT AND USE	VENDOR NO	VENDOR NAME	C ✓	QUANTITY AMOUNT	QUANTITY UNIT	LIST PRICE PER UNIT	DISCOUNT	NET PRICE PER UNIT	TOTAL VALUE	F O B	TERMS

One to the appropriate stores clerk.

One to the requisitioning point for follow-up. (This copy is replaced by the acknowledgment copy when it is returned by the vendor.) Both copies provide an identical form on the reverse side for posting receipts and follow-up notations.

One retained in the central office for statistical, record keeping and all reference purposes—filed numerically by purchase order number.

One retained in the central office in a cross reference file, alphabetically by vendor's name. This copy of the order is retained in the file at all times.

Decentralized Follow-up and Invoice Checking

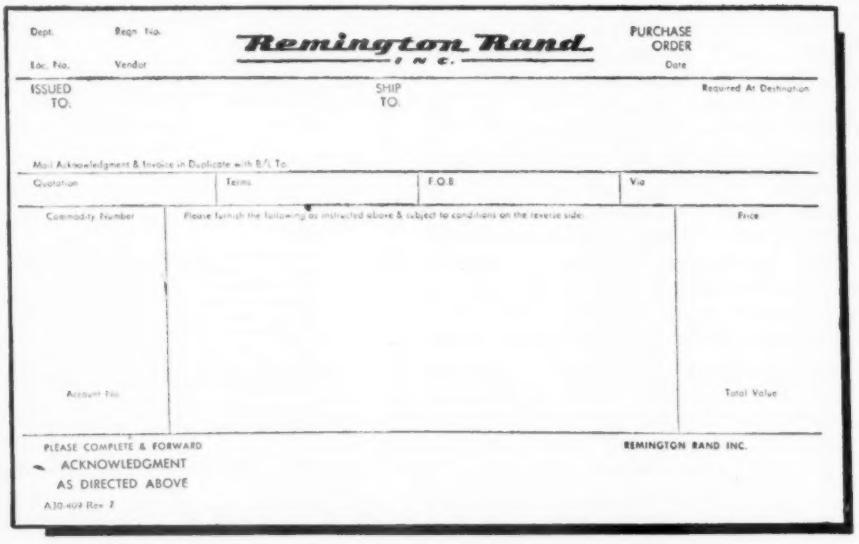
When the requisitioning point's "follow-up" copy of a purchase order is received, that point becomes responsible for follow-up in connection with delivery. If he is unable to secure a satisfactory delivery promise, he requests assistance

from the central office by means of a periodic critical materials report, letter, wire, or telephone depending on the urgency. Placing follow-up and expediting responsibility with the requisitioning point reduces correspondence and telephoning between that point and the central office of the Purchasing Department. The requisitioning point knows at first hand what urgency exists and when materials arrive.

Invoice verification is also a decentralized function with responsibility vested in local accounting sections at each plant. The purchase order advises the vendor where to send the invoice so it will reach the appropriate accounting section expeditiously. When the accounting section finds a discrepancy between the invoice and the purchase order, the buyer who issued the order is advised through the use of a form report.

If adjustment of the purchase order is indicated by the buyer's investigation of the discrepancy, a supplement to the purchase order is issued, one copy being forwarded to each holder of a copy of the order. The supplement copy received by the accounting section is the accountant's clearance to proceed with invoice payment. Purchase order supplements are used to effect changes in the original purchase order in addition to their being used to adjust discrepancies which evidence themselves as a result of invoice verification.

For simplicity and uniformity in record keeping, the major forms used in this system are made up in the 8 x 5 size.


Dept. Requ. No.
Loc. No. Vendor
Remington Rand INC.
PURCHASE ORDER
Date
ISSUED TO:
SHIP TO:
Required At Destination
Mail Acknowledgment & Invoice in Duplicate with B/L To:
Quotation | Terms | F.O.B. | Via
Commodity Number
Please furnish the following as instructed above & subject to conditions on the reverse side:
Price
Account No.
Total Value
PLEASE COMPLETE & FORWARD ACKNOWLEDGMENT AS DIRECTED ABOVE
REMINGTON RAND INC.
A30-409 Rev. 3

The Purchase Order is a 7-part form of the snap-out carbon variety. Each copy is numbered and identified for proper distribution. Reverse side of original contains the terms and conditions of purchase. Reverse side of follow-up copy and of the acknowledgment copy (which replaces it when returned by vendor with delivery promise) is ruled for posting receipts and follow-up action. Reverse side of Accounting Department copy is ruled for invoice verification. Reverse side of Receiving Department copy contains record of shipments and quantities received, and traffic charges.

Purchase Records

Purchasing records consist of a Kardex file of specifications, with which are filed purchase history records; a Remington Rand key-punched record of selected purchases; a Kardex file of buying instructions; requisition and purchase order files; and correspondence files.

The specification file is a unit file with one 8 x 5 card for each item which is purchased repetitively. Approximately 40,000 specifications are represented. Each card provides a description of the item adequate for purchasing purposes. The purchase order in so far as the specification is concerned is prepared from this card rather than from the purchase requisition. This assures complete and accurate description and eliminates the need for the full specifications being repetitively typed on requisitions.

The purchase history record also is a unit card (8 x 5), filed with the corresponding specification card. Each card records purchases of the item showing suppliers, order number, date of purchase, quantity, price and terms. Not all purchased items carry a purchase history record, since analysis has shown that in many cases it serves no real purpose for the buyer in guiding his future purchases of some items. An example is standard steel strip, of which we buy many different items and for which sources and prices are well known without referring to a purchase history record. Analysis of standard steel purchases are better accomplished through key-punched records. The key-punched records of steel purchases provide a tabulation of steel purchases by vendor and commodity, giving a picture of the distribution of these purchases. This kind of analysis is possible for any selected commodity or group of commodities through Remington Rand's tabulation facilities consisting of equipment of its own manufacture.

Correspondence files in the central office are operated as a centralized activity. All correspondence in the department is transferred to this filing section for follow-up at a specified time or for inactive retention. Correspondence is filed by subject in accordance with a subject classification. File indexers determine the essential subject of correspondence and the heading under which it would be requested from file and index it accordingly.

Purchased commodities of all kinds throughout domestic facilities of Remington Rand are classified under a numerical system. The classification and numbering system has been evolved by the Purchasing Department with consideration to a number of previous methods of identifying commodities. The method of classification has been developed to obtain the benefits of uniform and standard terminology and elimination of duplicate inventories. It provides ready reference to plants using the same items and is advantageous for bulk purchases, transfers of surplus, and possible location within the organization of materials in short supply.

Specification Control

Commodities are divided into four major categories as follows:

I —Crude Materials—Unprocessed materials in natural state.

II —Basic Materials, Products & Fabricated Parts—Materials to be used in further manufacture.

III—End Products — Finished manufactured products.

IV—Services — Items covering work performed or utilities.

These parts are subdivided in accordance with the natural grouping of items in industrial practice. Each group is assigned a primary four-digit number.

Each specification is reviewed and assigned an appropriate group primary and secondary number. The secondary number is used to dif-

Purchase Order Supplement, distinguished by yellow color, is issued to cover changes in quantity requirements or in prices, or as a clearance for payment by the Accounting Department in the event of discrepancies or adjustments.

Invoice verification is handled by the accounting section at the location where goods are received. If there is a discrepancy between the invoice and the original Purchase Order, it is reported on a Discrepancy Notice form to the appropriate buyer, for issuance of an adjusted Purchase Order Supplement.

PURCHASE ORDER
SUPPLEMENT

Remington Rand INC.

Purchase Order No.

Loc. No. Vendor

SUPPLEMENT NO.

ISSUED TO:

MAIL ACKNOWLEDGMENT TO:

Supplement Date

Purchase Order Dated

Vendor's Invoice

Commodity Number

Commodity

Please Revise Our Purchase Order To Read:

Reason for Change:

Quantity Change
Add Unit
Deduct Unit

Price Change
Previous Total Value
Add
Deduct
Revised Total Value

REMINGTON RAND INC.

PLEASE SIGN & RETURN THE ACCOMPANYING ACKNOWLEDGMENT COPY

A30-1171 Rev. 2

PURCHASE ORDER DISCREPANCY NOTICE

A30-110 REV. 1

Originated At _____ Dept. _____

Date _____ By _____

Remarks:

Purchase Order Dated | Purchase Order No.

Vendor

DISCREPANCY OCCURS IN: (Indicate by Letter)

A Specification
B Quantity
C Discount
D Unit Price
E Total Value
F Terms
G F O B
H To Be Shipped
I Ship To
J Invoice To
K (Other) _____

Item	Discrepancy	Purchase Order Reads	Rev	Rcvg	Ven	Prods	Indicates or Advises

Space Below To Be Used Only By Buyer Initiating Supplement

Revise Our Purchase Order To Read:

Reason for Change:

QUANTITY CHANGE - Unit Code
Add _____ _____
Deduct _____ _____
Supplement No. _____
Date _____
Buyer _____

PRICE CHANGE
Last Total Value
Add +
Deduct −
New Total Value

ferentiate between individual characteristics of specifications within any one group and, when possible, incorporates the dominant dimension or characteristic of the group of commodities being coded. An example of this method of coding is commodity number 3153-04201 developed as follows:

3, the first digit, indicates ferrous metals.

1, the second digit, indicates carbon steel strip, cold rolled.

5, the third digit, indicates #5 temper.

3, the fourth digit, indicates #3 edge.

042, the next three digits, indicate the thickness of the strip (.042").

01, the last two digits, are arbitrary numbers assigned to differentiate between other characteristics such as width, length or tolerance.

Although this program is not as yet complete, appreciable savings already have been experienced.

The Traffic Department, also under the direction of the Director of Procurement, is responsible for foreign and domestic transportation activities of the Company and its subsidiaries. The Central traffic office, under the supervision of a General Traffic Manager, is responsible for the movement of products to and from plants in an efficient and economical manner. Activities in connection with the filing of tariffs, loss and damage claims, overcharge claims, rate cases, appearing before regulatory bodies, and traffic expediting are handled in this office, where personnel is specialized in each of the various functions enumerated above.

Traffic Department

A traffic manager located at each plant is under the supervision of the General Traffic Department. He prepares bills of lading and other necessary papers in connection with domestic shipments as well as supervising plant shipment of Remington Rand products. Purchase orders emanating from the central office of the Purchasing Department are passed through the routing section of the Traffic Department, so that vendors will be advised regarding the routing they are to use to provide us with prompt and economical service. The routing section also supplies our plants, warehouses, and subsidiaries with routing cards covering outbound shipments of our products. These routing cards show traffic routings which are to be used and the rates applying. Also shown is data indicating the most economical method of shipment. These routing cards, developed from studies of pertinent routing guides and tariffs, cover all destination cities having a population of over 5,000.

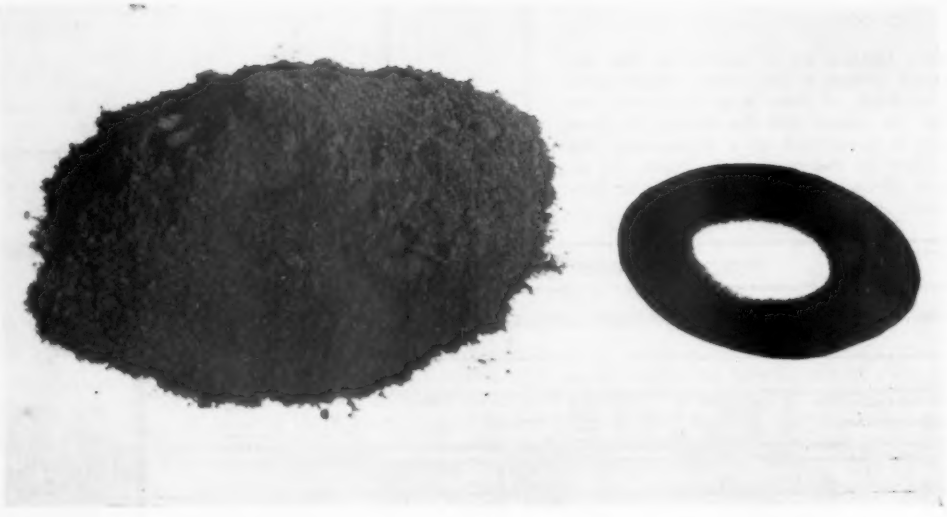
Classification sheets are prepared and sent to each of our plants and warehouses, showing the rates that apply on the various products produced by each plant. These sheets are developed from railroad and motor freight classifications, showing the trade name of our product and proper traffic description applying. Freight bills covering shipments made are paid at the plant locations and sent to the central office of the Traffic Department for audit. Overcharge claims and claims for loss or damage are made and negotiated by the central office. Rate analyses and transportation studies also are made by the central traffic office and supplied to management as guides in establishing warehouses, new locations for plants and to advise management of the general trend of transportation costs as they apply to our products.

Export and import shipments are handled by the International Section of the Traffic Department. It arranges for steamship space and obtains necessary documents. The Traffic Department also arranges for

(*Please turn to page* 398)

DIAMOND MINE IN DETROIT

Chrysler salvage experts reclaim 8,800 carats of industrial diamonds and bort in 3-year campaign



Salvage — at $5,000 a pound. The black swarf at left, collected from factory grinding operations where diamond wheels are used, is refined to recover the nearly pure diamond dust at right, suitable for reuse. Up to 50% of bort is recoverable.

THE Salvage Division of the National Production Authority is conducting an intensive nationwide program for the conservation and reclamation of industrial diamonds and diamond dust. Requirements are expanding, and present needs are in excess of supply. Significance of this shortage goes beyond the usage of diamond tipped tools themselves. Diamond dust, or "crushing bort", is needed in wheels for the sharpening of carbide-tipped cutting tools; lack of this material could cause a breakdown in the entire metalworking industry, for only with proper maintenance of these carbide tools can volume and quality production be maintained.

Brighter side of the picture is that diamonds are salvable. Industrial diamonds mounted in tools, wheel dressers, drilling bits, wire drawing dies, glass cutting tools, and similar devices, are never completely worn out. Diamonds lost during operation of grinding wheels either crack up or shatter in use, or are pulled from the bond which holds them in place. They can be reclaimed for reuse. About 80% of the crushing bort supply is used in grinding wheels; up to 50% of this can also be reclaimed, particularly in wet grinding operations, where salvage is 30% greater than in dry grinding.

Chrysler Corporation provides an outstanding example of what can be accomplished in diamond salvage. Most bort is imported from African mines, and costs about $5,000 per pound. Chrysler has "mined" diamond dust in its 33 plants, where more than 7,000 diamond-pointed tools and diamond grinding wheels are in use for such precision operations as boring, lapping, reaming and grinding. Aluminum pistons, for example, are turned on a lathe with a diamond-pointed tool, measurements varying less than one ten-thousandth of an inch. Such tools are also required to "true" grinding wheels made either of diamond dust or sharp grains of corundum and other hard mineral combinations. As the wheels become loaded with particles of the material being ground, diamond-pointed truing tools are used to open up the grains and restore the surfaces to their original roughness.

In the course of a salvaging program started less than three years ago, under the direction of A. E. Chilcott, who heads Chrysler's nonproductive material control department, the company has salvaged enough diamond material to meet 11% of its annual requirements. Total weight of this diamond "find" is 8,800 carats, or 191 times the weight of the famous Hope diamond. Going price of industrial diamonds in commercial sizes is currently in the neighborhood of $35 to $40 per carat. The salvaged material is sold to concerns who supply Chrysler with dressing tools, for reuse.

A considerable part of the recovery has been in the form of dust from the "swarf" and "sludge" of diamond-bearing grinding wheels and tools. Swarf, which is dust produced in dry grinding, is recovered by machine attachments which suck the dust into collecting bags. The sludge from wet grinding processes is saved in settling tanks which trap the diamond material and prevent its running off into the plant disposal systems. Diamond wheel grinding operations are done on separate machines to keep the diamond bearing sludge separate from other sludges.

Practical chemical processes have been developed for separating industrial diamonds from the impurities in swarf and sludge, and for dissolving the binder material used for holding the diamonds in the tools.

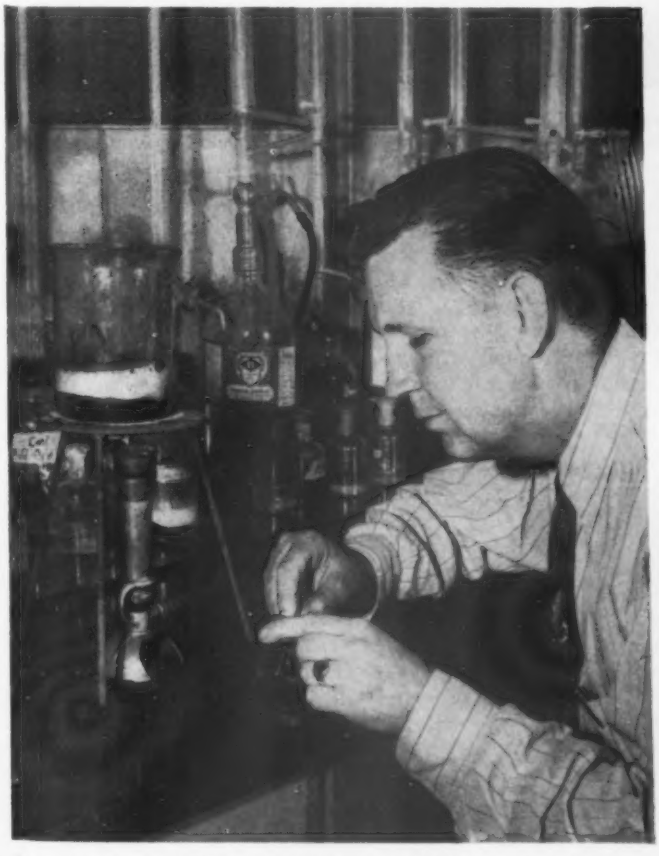
The salvage program should be combined with good conservation practice, such as grinding wet wherever possible, with a generous flow of coolant or mist; following wheel manufacturers' speed recommendations; and using diamond wheels only where other type abrasives are unsuited, e.g., backing off the steel portions of carbide-tipped tools on aluminum oxide wheels to avoid the grinding of steel by the diamond wheel.



Collector — A. E. Chilcott, who heads Chrysler's non-productive material control, weighs 50 carats of diamond dust reclaimed from grinding waste in the plants. His three-year total — 8,800 carats.



Trapped — by a suction device and collecting bags attached to the diamond-wheel grinder, the "waste" becomes a source of reclaimed diamond dust equivalent to 11% of annual requirements



Chemical Bath dissolves the binding material from worn or broken diamond-pointed tools. Laboratory supervisor D. L. Vande Bunte finds "good pickings" in this phase of the diamond salvage plan.



$1,000 Stone Pile. Not exactly acres of diamonds, but the 350 carats in this lot reclaimed for reuse represent a substantial achievement in the conservation of an exceedingly scarce and essential item.

Canada Forges Ahead in Aluminum Production

. . newest, biggest unit in the world's most rapidly expanding basic industry

By A. N. Wecksler

PURCHASING's Washington Editor was the guest of the Aluminum Company of Canada at a press tour of ALCAN's power and smelting installations in the Province of Quebec. Occasion for the tour was the installation of the first generator in one of the largest hydro-electric plants built in North America since the end of World War II. More than a million horsepower of new electric power is being added for the expanded aluminum smelting facilities that are being established in the area. This article presents his first-hand report and interpretation of what he saw there.



The world's first all-aluminum highway bridge (lower left) spans the Saguenay River at Arvida, Quebec. It is an outstanding example of the use of aluminum as a structural material.

SINCE the war in Korea, there has been an expansion in materials output and industrial capacity unequalled before in peacetime or in wartime.

And even though supply in many fields has equalled or outstripped the current demands of a dual high level military and civilian economy, further expansion is still projected for materials and industrial capacity.

At successive stages in the expansion, the significant question is raised as to where the market for materials and products can be found, and all the fingers which point out the have-not millions of other countries fail to indicate how an effective world demand can be sustained.

But this question has not hindered the expansionists, and so far their enthusiasm for creating a greater supply of materials has been justified historically. That does not mean that surpluses have not appeared, but the lull in demand has been caught up in a new era of requirements—and what was surplus quickly came into short supply.

Stockpiling Power

Now a new concept in materials supply has been raised. This new concept is "packaged power".

In the lighter metals, a major ingredient in the manufacture of aluminum is electric power. Electric power as derived from what is presently the cheapest source—water power—cannot be stockpiled. The energy of the waters flowing from their source streams to the sea cannot be conveniently stored from year to year.

Ingots of aluminum can be stored, however, and strong stress is now being placed by U. S. defense mobilization officials on the advantages of storing power in the form of aluminum ingot. The preoccupation of defense officials with the idea of storing up electric power in the form of aluminum ingot is easily explained through the importance of the light metal in the field of military aviation.

The aluminum industry welcomes the idea of further expansion of its capacity. While the idea of creating a huge stockpile of aluminum ingot as a reservoir of "packaged power" might raise the danger of a constant surplus overhanging the industry's normal market, there is no such fear in the industry.

Leaders in aluminum production look hungrily at the multiple uses of iron, steel, and copper, for which they can see aluminum as a substitute.

Officials of the Aluminum Company of Canada (ALCAN) have

adopted perhaps the boldest attitude toward expansion of their productive capacity. Their attitude is that while there might be some question as to whether current capacity balances current requirements, there is no question but that aluminum is in insufficient supply for all the uses to which the metal can be put.

Canadian Expansion

Conditioning the ALCAN position is that the company has developed a spectacular hydroelectric power complex in the wilds of the Quebec Province of Canada—the largest privately owned power complex in the world.

The power is derived from two swiftly flowing rivers—the Peribonka, which flows into Lake St. John, and the Saguenay, which drains Lake St. John and flows rapidly in sharp descent to the St. Lawrence.

At various intervals, ALCAN has dammed up the Peribonka and the Saguenay, and dropped the rush of waters over spectacular heights to turn the huge turbines for the generating of low cost hydroelectric power. Both rivers drain huge and heavily wooded areas, and flow over beds of rock. The first guarantees a large volume of water, and the second wards off the day when the dams would be made useless by the silting of the river bed.

These natural advantages, ALCAN officials believe, give them a long-term access to cheap electric power. Also the fact that their power sources are located in isolated—if not barren—areas, means that they do not have a large population which can call on them to divert electric power to cities for lighting homes and running washing machines—also that competing industries will not be in a position to outbid them for electric power.

The importance of cheap power in the production of aluminum is pointed up by the over-simplified explanation of the production process involved in the output of aluminum. Two pounds of alumina and other minor substances plus 10 kilowatt hours of electricity produce one pound of aluminum.

Along with cheap and abundant electric power, the other major factor in determining the location of aluminum smelters is nearby port facilities so that the bauxite ore boats can bring the ore to the smelters.

Broadening Outlets

One significant factor in both the production and fabrication of aluminum is the relative newness of the metal. Aluminum was first made in 1825, and once cost over $550 a pound. When Napoleon III wanted to impress guests, he chose aluminum in preference to the then less rare gold for use in dinnerware.

From this early whimsical use, aluminum achieved its greatest utility with the development of aircraft, and now is used in some 4,000 diversified applications, ranging from coffee pots to bridges.

Though Canadian and U. S. production increased six-fold between 1937 and 1944, and will be doubled again by 1954, estimates of the three U. S. producers indicate that supply will fall short of peacetime demand by 1960. Kaiser predicts that in 1960, the U. S. economy will consume 4.2 billion pounds of aluminum; Alcoa believes demand will be about 4 billion pounds a year in a decade; and Reynolds predicts annual demand will exceed 7 billion pounds within 10 years.

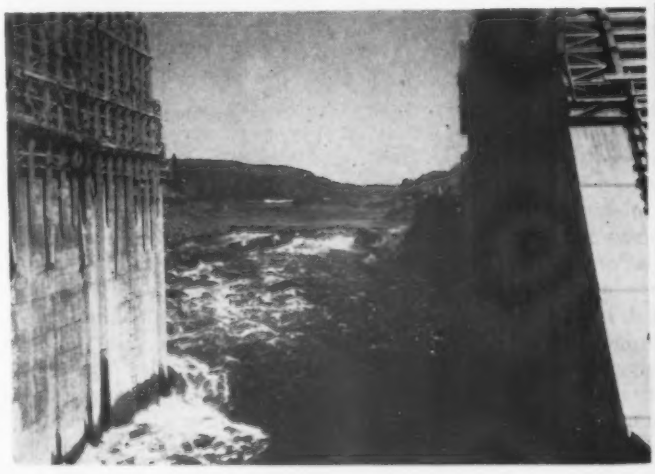
The recently published Paley Report (The President's Materials Policy Commission) estimates that civilian aluminum demand will, by 1975, have increased more than that

(*Please turn to page* 398)



Modern generators in the gigantic Shipshaw No. 2 power house on the Saguenay River, supplying electric power for the world's largest aluminum smelter.

Looking downstream through the sluice of Chute du Diable Dam on the Peribonka River, where a half million hp. of hydro-electric power is being harnessed to serve Alcan smelters.



Aluminum is a vital component of a growing list of products already numbering more than 4,000 items. Latest demand is as a means of "stockpiling" energy that would otherwise be lost.



New technique for quick quantitative measurement

X-Ray Gives the Answers on Material Analysis

By John Buhler, Research & Control Instruments Division, North American Philips Company, Inc.

THE Geiger counter, popularly associated with the detection of radioactivity in connection with work on atomic fission and in prospecting for uranium, has moved into the industrial laboratory as an important, everyday testing device. It has been harnessed with X-ray diffraction, long recognized as an indispensable research tool, to become a quick, convenient, and accurate means for non-destructive testing and quantitative analysis of an important range of materials such as the high alloy steels which have been difficult to analyze by the usual chemical and spectrographic methods.

This new technique that has gone to work for industry is called X-ray Fluorescence Analysis. It does not require a highly trained operator, the average laboratory technician being capable of operating the equipment, once an appropriate analytical technique has been established. Specimen preparation is extremely simple; most of them can be analyzed without any preparation other than to provide a flat surface. Specimens are not destroyed, nor permanently changed, so the analysis can be made without loss for sampling on raw materials or on semi-finished products. A large area of the specimen is analyzed, thus avoiding the effects of segregation.

X-ray fluorescence should not be confused with visible fluorescence. Visible fluorescent radiation is produced when X-rays strike a material such as zinc sulphide or other substances used for coating medical X-ray screens. The visible light produced in the screen is caused by the action of the X-rays on the fluorescent coating. This, too, has its place in commercial testing, in the detection of inner flaws in castings or the like.

X-ray fluorescence is similar, but of much shorter wave length. It is produced by incident X-radiation of high intensity, i.e., short wave length and high energy level. By thus irradiating a specimen, the characteristic X-radiations of the elements in it can be produced. Then, by using X-ray diffraction methods, the various wave lengths may be separated and measured. The various intensities can be determined to give the percentages of each element in the specimen.

The analysis is independent (except for absorption effects) of the state of the element in the sample, whether it be free, combined, or alloyed. The method can be used to detect all elements from titanium to uranium, and by comparatively simple alteration the range can be extended several elements lower than titanium in atomic number.

The first commercially available fluorescence analysis equipment was developed by North American Philips Company in 1948. Current models have been greatly improved since the first units were introduced, and many new ideas resulting from field testing and experience have been incorporated.

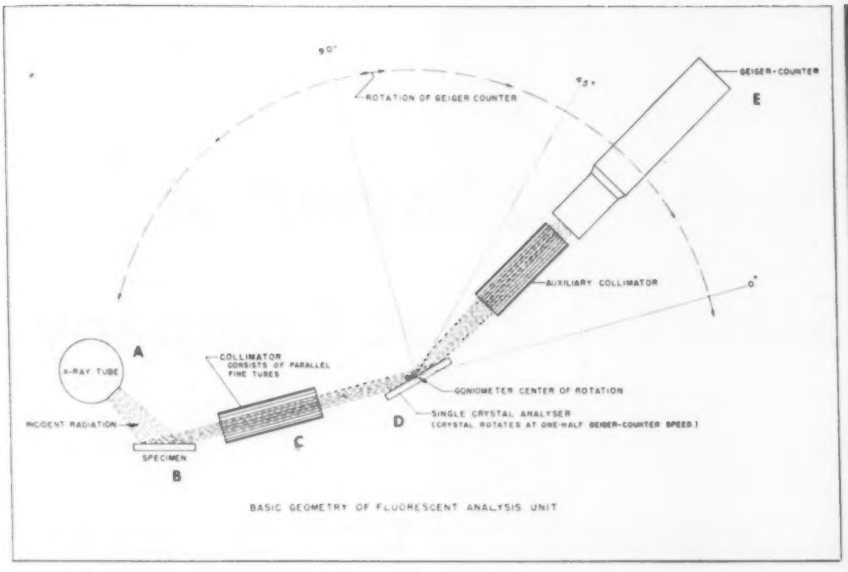
A common application is in the analysis of heat resistant and high temperature alloys of the chromium-nickel-cobalt type. Analysis of low percentages is limited by the relationship between background radiation intensity and the intensity of the line of the element involved. The effect of self-absorption of the characteristic radiation of the element by the materials of the specimen is also a factor in determining the lowest percentages which may be practically analyzed. Specimens in which the main constituent is a high density element, will absorb a higher percentage of the radiation involved than will be absorbed by a lighter element. Thus, for instance, the nickel in an aluminum alloy can be determined to a lower percentage than is possible in a silver or lead alloy, in which the absorption of the nickel K radiation is very high.

The specimen can take any one of a number of forms. If it is a liquid, or is in solution, it is placed in an open-faced level holder. In vapor form, it may be placed in the same holder, with a thin transparent membrane cover. Powdered material is placed in the holder and pressed flat. Metal specimens are cut to about 1″ square, by 1/16 to ¼″ thick, to provide optimum thicknesses, though foils or evaporated films can be placed in the holder for analysis. Irregularly shaped specimens, in which cutting or deforming is impractical, can be placed in the holder in such a position that irradiation of a face can be accomplished.

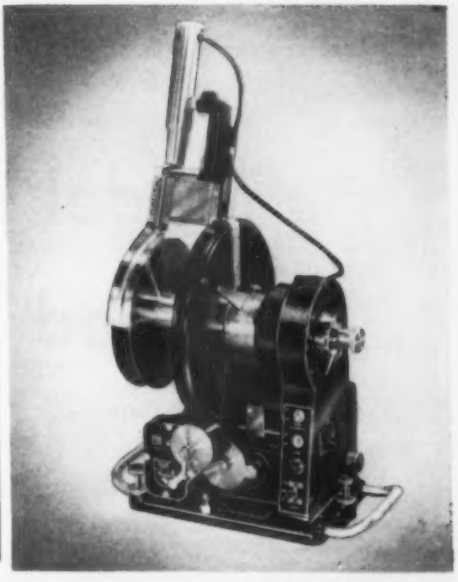
Each specimen becomes a secondary standard, and may be used to extend the supply of standards, because there is no change caused in the specimen by the analysis. Since the radiation covers a relatively large area (approximately ⅝″ square as viewed by the collimator), the effect of segregations and non-homogeneity is not as important as it would be in spectrographic analysis, where a relatively small area is contacted by the arc or spark.

Approximately 3 to 5 minutes per element is required after the specimen is prepared. The analysis consists of inserting the specimen, setting the crystal and the Geiger counter at proper angles to detect the appropriate K or L radiation, measuring the intensity in counts

(*Please turn to page* 398)



BASIC GEOMETRY OF FLUORESCENT ANALYSIS UNIT



HERE'S HOW IT WORKS. X-ray beam from source (A) is directed onto a specimen (B) of the material under analysis. This causes the various elements to fluoresce, producing their characteristic X-ray spectra. The fluorescent X-rays then pass through a collimator (C) composed of a bundle of thin-wall nickel tubing (1/16 or 1/32" diameter) in a housing approximately 5/8" square cross-section. Purpose of the collimator is to cause a nearly parallel beam of fluorescent radiation to strike the analyzing crystal (D).

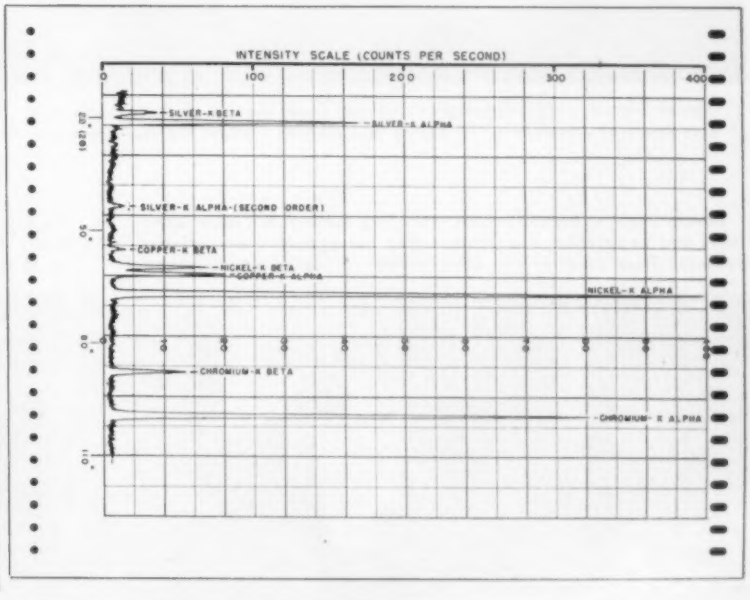
The crystal, of known interplanar spacing, acts as a diffraction grating, resolving and dispersing the various wave lengths of X-radiation in the same manner that an optical grating diffracts visible and ultra-violet radiation in the optical spectograph. Long wave lengths of X-radiation are dispersed to higher angles, and the short wave lengths to lower angles.

The crystal separates the various wave lengths sufficiently that each may be individually detected by the Geiger counter (E), moving through a suitable scanning arc, and the intensity of each radiation measured. Since the intensity of the characteristic radiation from a given element is proportional to the percentage of the element present in the specimen, this measurement may be used for quantitative analysis.

HERE'S HOW IT LOOKS. The diffracting and scanning elements are assembled with a high precision, synchronous drive goniometer with worm-gear transmission, which provides for constant and coordinated angular velocity through either increasing or decreasing angles at any one of five speeds. The worm is directly coupled to the degree register which indicates the angular position of the X-ray detector slit with respect to the primary beam.

A micrometer dial with engraved vernier intervals reads the fractional angles accurately, and is located in a position convenient for reading by the operator. The drive assembly includes a switch mechanism activating an auxiliary pen on the recorder.





HERE'S THE COMPLETE UNIT. The fluorescence analysis unit includes four major components: (1) The basic X-ray unit, comprising a power transformer and circuits to operate: (2) The special water-cooled, oil-insulated irradiating X-ray tube. (3) The wide range Geiger counter goniometer, described above. (4) The electronic circuit panel with strip-chart recorder, at right, incorporating a high voltage supply for the Geiger counter tube.

HERE ARE THE RESULTS. Typical record chart showing analysis of an alloy specimen. The recorder is equipped with a degree-marking pen which indicates angular positions and identifies the elements, and a tracer pen which is calibrated for intensity readings. The speed of response is such that full scale travel is accomplished in four seconds or less. Chart speed is normally 7.5 inches per hour, but may be increased to 15 or 30 inches per hour The electronic circuit panel may be used separately for nuclear work if desired.

New office arrangement improves working conditions

Model Purchasing Layout at United States Rubber Company



Typical Division Purchasing Agent's office. There are six of these, each being the nucleus of a compact unit including the buyers and clerical workers for the respective divisions.

TWELVE years of growing pains after the offices of United States Rubber Company were moved to its new building in Rockefeller Center, New York, in 1939, found the Purchasing Department scattered over portions of three different floors, and crowded besides. The result was confusion, a lot of unnecessary office traffic, and inconvenience to the purchasing staff, their associates from other departments, and business callers alike.

This situation was resolved in the Fall of 1951, when management allocated the entire 9th floor to Purchasing, permitting the physical consolidation of facilities.

The accompanying photographs and floor plan show how Purchasing took advantage of this opportunity for a complete rearrangement of office layout, resulting in more efficient operation and notably improved working conditions.

Buyers have individual offices, affording privacy for sales interviews and negotiation — a feature that has prompted appreciative comment from many of the sales people calling on the company.



Clerical workers for each division are located adjacent to the buyers' offices. Files and records have been decentralized according to divisions for easier access, reducing intra-office traffic.

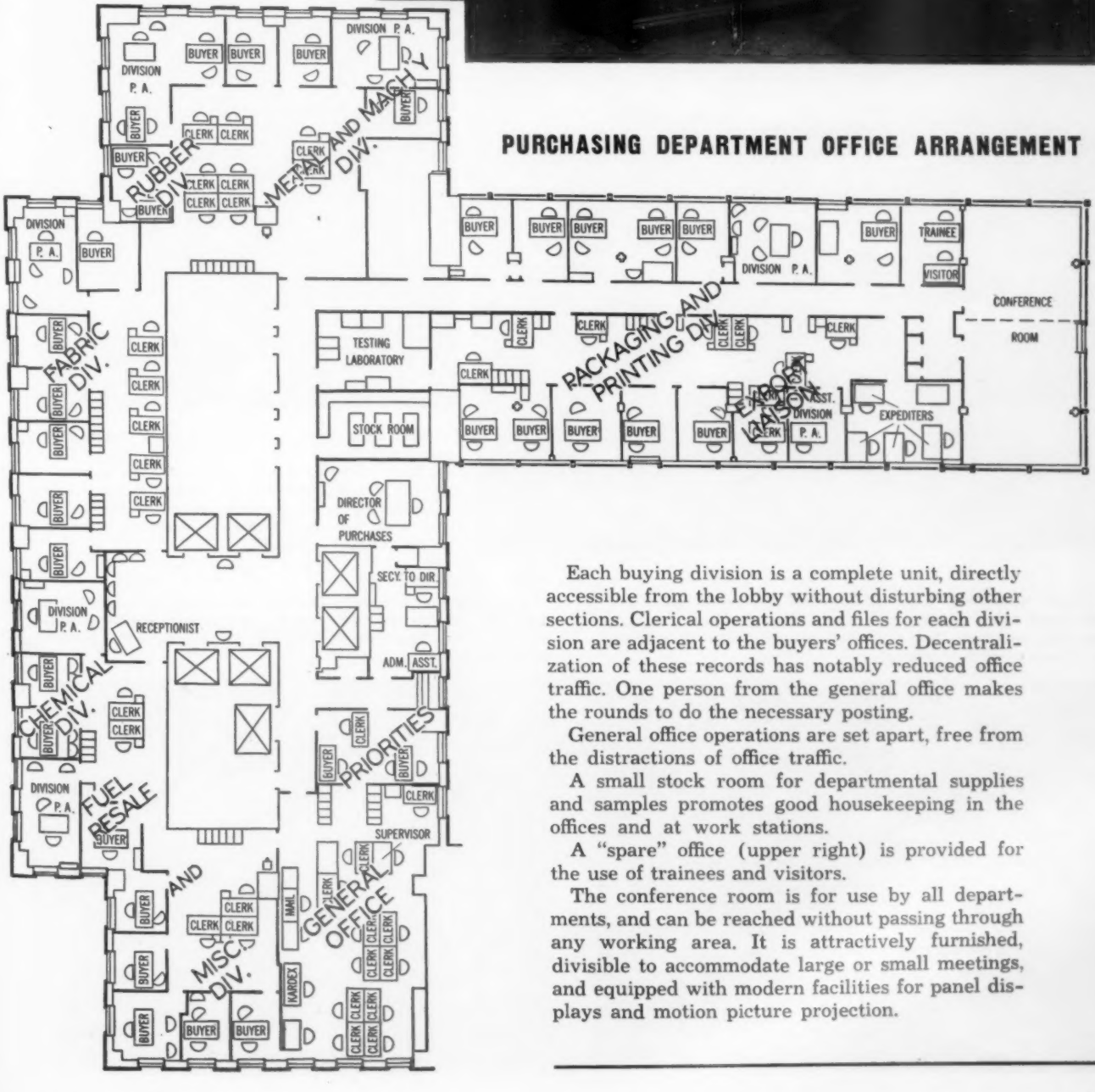


The office of S. W. MacKenzie, Director of Purchases, is centrally located, directly off the reception lobby. Visitors can come to this office without disturbing any other section of the department. It is roomy enough to accommodate a staff meeting of Division Purchasing Agents. The Administrative Assistant and Secretary to the Director occupy immediately adjoining offices.

The pleasant garden terrace outside is nine stories above street level in midtown Manhattan, on the roof of the adjacent Center Theater Building.



PURCHASING DEPARTMENT OFFICE ARRANGEMENT



Each buying division is a complete unit, directly accessible from the lobby without disturbing other sections. Clerical operations and files for each division are adjacent to the buyers' offices. Decentralization of these records has notably reduced office traffic. One person from the general office makes the rounds to do the necessary posting.

General office operations are set apart, free from the distractions of office traffic.

A small stock room for departmental supplies and samples promotes good housekeeping in the offices and at work stations.

A "spare" office (upper right) is provided for the use of trainees and visitors.

The conference room is for use by all departments, and can be reached without passing through any working area. It is attractively furnished, divisible to accommodate large or small meetings, and equipped with modern facilities for panel displays and motion picture projection.



Business callers receive a cheerful welcome in the elevator lobby. The new layout has given practical force to the company's policy of keeping waiting time to a minimum. With individual offices, there no longer are delays caused by interviews being conducted by some other buyer sharing the same office. Visitors can go directly to each buying division without disturbing other divisions or passing through general office space.



The Rubber Division purchasing office has a direct ticker service from the Commodity Exchange, providing up-to-the-minute information on market changes. Clerical staff of this division handles the recording of contracts, filing, and inspection records; also, allocation of rubber shipments to the various company plants.



Electric typewriters, good lighting, and uncrowded space help typists and order writers to do excellent work. They transcribe from discs coming to them both from personal dictating machines and remote control recorders.

A well lighted, efficiently arranged section of the general office for mail distribution, card records, and invoice checking, shows results in the elimination of extra steps for the personnel handling these duties.





Watch the legal stipulations when . . .

Rejecting Defective Equipment

By *Albert Woodruff Gray*

TO MAKE YOUR CLAIM FOR REJECTION OR DAMAGES ON DEFECTIVE GOODS VALID . . .

Have the warranty and remedy specifically stated in the contract.

Remember that the contract protects the seller as well as the buyer by its stated terms.

Follow the procedures stated in the contract, to the letter.

Report any defects to the seller promptly—delay can nullify your argument in later litigation.

Make it clear in your report that defects are claimed as a breach of contract.

Don't continue to use goods or equipment after defects are claimed.

A comment of the New York Court of Appeals is contained in an old New England maxim, that a man may be honest but you want to keep him honest.

"There is danger of fraud and false claims when notice is not early given of the defects in purchased goods," said that court. "It leads the buyer into temptation. The proof should be more clear than if the buyer had acted with the frankness of an honest man willing to allow his claims to be tested."

A large majority of the states have adopted statutes governing the giving of the notice by a buyer of defects in goods that are purchased.

"In the absence of an express or implied agreement of the parties, acceptance of the goods by the buyer shall not discharge the seller from liability in damages or other legal remedy from breach of any promise or warranty in the contract to sell or the sale. But if, after acceptance of the goods, the buyer fails to give notice to the seller of the breach of any promise or warranty within a reasonable time after the buyer knows or ought to know of such breach, the seller shall not be liable therefor."

The purpose of this statute, according to one court, is to prevent the buyer retaining the goods and using them, failing to give any notice of the breach of the original agreement to the seller until it has been sued for the purchase price and then setting up affirmatively a defense by which the buyer can wipe out all the original purchase price and demand an affirmative judgment for an additional sum against the seller.

Unreasonable Delay

A Wisconsin boiler tube manufacturer sold tubes for replacement in the boilers of a Milwaukee plant. The tubes were delivered, the invoice paid, but within thirty days after the boiler had been put in operation one of the tubes exploded.

A year and a half after the explosion, the purchaser sued the manufacturer for the damages from this defective tube. During the year and a half between the explosion and the bringing of this suit no claim nor complaint had been made to the tube manufacturer.

The purchaser, said the court, has neither a right of action for a breach of warranty nor a defense to an action for the purchase price unless the required notice has been given. Even when the seller knows the facts, the buyer is not excused from giving a notice of the defects. The notice is not a notice of the defects but of the purchaser's claim that the defects constitute a breach of the sale contract. The notice must tell the seller that the buyer will look to him for damages. In this case, as no notice was ever given the tube manufacturer, the buyer has no basis for a recovery.

The comment by the court in this decision that the seller's knowledge of the defects in the articles sold did not dispense with the buyer's obligation to give this notice of the breach of warranty and his purpose to hold the seller liable for the consequences, was emphasized in a sale of machinery in Massachusetts.

Complaint Is Insufficient

A Fall River ice and cold storage company purchased a twenty-ton evaporating apparatus. The buyer agreed to pay $1,500 within thirty days after delivery "unless within that time it notified the seller that the apparatus had failed to accom-

plish the results guaranteed by the seller and requested its removal."

The machine failed to do the work, and the buyer complained to the manufacturer, who made an effort to remedy the defects. Later, when the manufacturer sued for the price, the buyer set up in his defense a claim for damages.

Of the insufficiency of the defense the Massachusetts court said, "It is true that the buyer expressed dissatisfaction and that efforts were made to improve the apparatus so that it would produce better ice, but this fell far short of the notice and request required by the contract or of furnishing a valid excuse on the part of the buyer for not complying with the provisions of the contract."

REFERENCES

Day v. Pool, 52 N. Y. 416

Uniform Sales Act, Sec. 49

Regina Company v. Gately Furniture Co., 154 N.Y.S. 888, New York

Marsh Wood Products Co. v. Babcock & Wilcox, 240 N.W. 392, Wis.

Pennsylvania Iron Works Co., v. Hygeian, 70 N.E. 427, Mass.

Austin v. Tillman, 209 Pac. 131, Ore.

Frick Co. v. Bridges, 179 S.E. 861, Ga.

McCaskey v. Link, 242 S.W. 2d 280, Missouri.

Contract Stipulates Terms

The wisdom of that old adage that a man should be kept honest, reflected in the law's requirement that a buyer give notice of defects in goods he purchases, was highlighted by an opinion given by a judge in an Oregon case arising in the purchase of an asphalt mixing plant.

This order was in part, "Ship one (brand name) portable asphalt mixing plant for which we agree to pay $8,700, f.o.b. Astoria, Oregon, payment to be made within 10 days after plant is in operation. In accepting this order it is with the understanding that we guarantee the outfit to be well made, of good material and free from defects. Should any defective part or parts develop in six months after arrival at destination, we are to furnish the new part or parts free, f.o.b. your factory and we are to guarantee that the machine when properly operated, is capable of laying 750 to 1,200 square yards of 2″ asphalt in ten hours. If for any cause when testing the machine, defects should develop, we are to have a reasonable length of time to remedy defect, but limited to 90 days, and if we are not able to remedy the defect and make machine deliver the amount of material as herein provided, you are to return the machine to us and the amount you have paid for freight from your factory to Astoria, Oregon, is to be refunded and this order cancelled."

The purchaser was engaged on a highway construction contract. The machine was employed on this job that was completed four months after the mixer had been delivered. In the meanwhile the seller had sued to recover the price and the buyer set up as a defense the damages he claimed he had incurred from the failure of the mixer to function as the seller guaranteed.

Both Parties Are Bound

In reference to the provisions of this contract covering the relief that the purchaser might demand for any defects that occurred, one of the judges of the Oregon appellate court said,

"It must not be forgotten that in contracts of warranty, the same as in all other contracts, the contracting parties have a perfect right to put into such contracts all its terms and conditions and to provide all and entire the remedies contemplated and agreed upon by the parties. It was competent for the parties to contract with each other in relation to the extent of the terms and conditions of the warranty and to impose such limitations and restrictions thereon as they might mutually agree upon.

"When the parties do agree upon such remedies and their contract by its terms expresses a clear intent and purpose in that respect, they are bound thereby and limited to the remedies or remedy so provided.

"The buyer's refusal to perform the alternative of returning the machine entails the performance of the other alternative, that of paying the contract price. The buyer cannot go on using the machine, increasing the amount of consequential damages and expect the seller to pay them. To allow a counterclaim for damages of any kind is to let the buyer into a remedy from which it excluded itself by its covenant to return the machine and get back its money already paid.

"Where it is stipulated as a condition of the contract of sale," concludes this opinion, "that the property is to be returned within a specified time if not as represented, the buyer is entitled to no redress without first offering to return the property within the time fixed by he contract."

The law outlined in this opinion charts the course and the only course available to a buyer for his recoupment of loss through the purchase of defective machinery. When the method for adjusting claims of this character is stipulated in his purchase contract, the law insists that he follow that method.

Continued Use Nullifies Claim

The decision in another case of this character has often since been followed by the courts in their application of the law to clauses prescribing the notice to be given by a buyer when the goods he has purchased fail to meet the stipulations of the order or sales contract.

In this Georgia case it was agreed in the sale contract that should the machinery be unsatisfactory the buyer should give notice in writing by registered mail five days from first putting the machine in operation, stating in what respect the machinery failed to perform; return the machinery immediately to the place where it had been received if the company failed after such notice to make the machine function satisfactorily; and, if the machinery was used longer than five days from

the time it was first put into operation, without noice by the buyer of its failure to give satisfaction, the absence of that notice should operate as an acceptance of the machine and as a fulfillment of the terms of the contract.

Not only did the machine fail to fulfill the purpose for which it had been bought, but the company failed to remedy the defects. Nevertheless the buyer continued to use it, and when an action was brought to recover for the promissory notes given in payment, the buyer set up as a defense this failure of the machine to fulfill the representations made.

The Georgia court said of this defense, that the failure of the buyer to return the engine to the place where it was received was such a failure of compliance with the terms of the contract of purchase as not to relieve the purchaser from liability therefor.

Buyer Must Comply

Where the obligations of the seller under such conditions are predicated on conditions which must be performed by the buyer the seller will not be held liable unless the buyer complies with the terms and conditions set out in the sale agreement.

The vital obligation of any purchaser, once having agreed to the time and manner of either giving notice of defects to the seller or the returning of the goods, was the essential feature in a lawsuit decided only a few months ago in Missouri involving the purchase contract of machinery.

This contract provided, "All defects in manufacture to be made good for a period of one year from date of invoice and should machine get out of order through ordinary and proper use during said period of one year, then and in either event, the seller agrees that it will make all necessary repairs and adjustments at its factory without charge to the purchaser, provided that said machine shall in either of such events be returned to the company at Alliance, Ohio, for such repairs and adjustments.

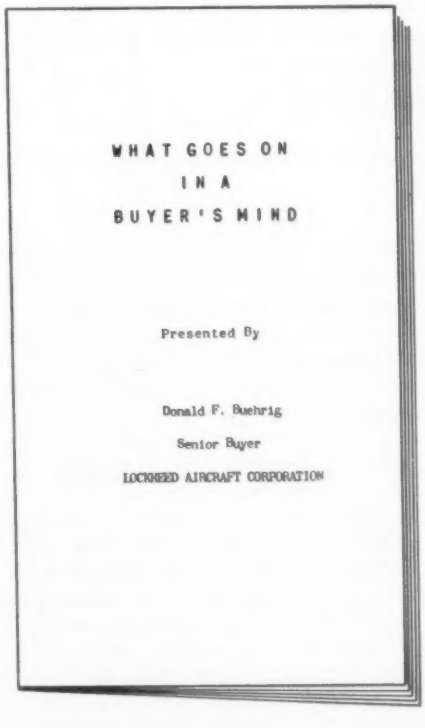
"Upon completion of such repairs and adjustments the company will return said machine to the original point of shipment, shipping charges one way to be paid by the company and the holder of this guarantee to pay shipping charges the other way. We make positively no other warranty as to any of our products other than made herein."

While the purchaser here repeatedly complained to the salesman, he continued to use the machine and never at any time returned it to the company for repairs.

In its decision against the purchaser, the court said of his failure to observe these stipulations, that while the company agreed that there were no defects in the manufacture of the machinery and that with ordinary and proper use the machine would operate one year without need of repair,

"The contract fixed and limited the seller's responsibility in the event of a breach of either of said warranties to an adjustment or repair of the machine within one year from the date of the invoice provided the machine be returned to the company for such purpose. It was also provided that the purchaser, in the event of a return of the machine for adjustment or repair, should pay the shipping charges one way. The foregoing conditions are valid and binding as conditions precedent to the assertion of any claim for breach of warranty by the purchaser."

The solemn words on the wall of that palace in ancient Babylon might be applied to the effort of the buyer who makes and later fails to follow his agreement for the time and manner of claiming damages for defective goods—weighed in the balances and found wanting.



Sound Sales Advice . . .

SALESMEN making their first call on Lockheed Aircraft Corporation get food for serious thought and some sound selling advice from a little booklet entitled "What Goes On in a Buyer's Mind", by Donald F. Buehrig, Senior Buyer. It tells, frankly and in down to earth language, the buyer's approach to his job, his probable reactions to different types of sales approach, and the factors most likely to win his confidence and his orders. Example of this practical sales counsel:

"Usually there are but three reasons why a buyer will open a new account:

Quality is superior to what he has been buying.
Price is more attractive.
Service is better.

There are a lot of good brands of all kinds of merchandise on the market. List prices and discounts are fairly well established. Service, on the other hand, varies all the way from very poor to excellent. In making your first call, your best chance of winning a buyer would be to talk about the service that you give your accounts.

"Why is service so important? Fully 50% of a buyer's time is spent trying to buy service. It is a commodity that is in great demand and short in supply.

"What is meant by service? No, it doesn't mean that you will make a call every Tuesday in the week, but how you follow through once you have an order. You golfers know that it is impossible to play a winning game without a good follow through. Place the same importance in your sales activity. . .

"A buyer's responsibility is not complete until the materials purchased have been delivered and the invoice paid. The salesman, being the other party to the purchase contract, has, and should assume, the very same responsibility."

A buying organization built from scratch

Establishing A New



Purchasing Agent Earl M. Rossome who with Marvin J. Gaut, Director of Materiel, had the challenging assignment of setting up a procurement organization and establishing supply lines for a multi-million dollar plant in an unfamiliar and highly exacting manufacturing field, without benefit of precedent, experienced staff, or nearby supply sources to aid them. Operating from make-shift offices in a rented garage, they had the plant fully equipped with $3 million worth of machine tools, ready to start producing the day the building contractors moved out. In the record of the first year's operations there is not one instance of production delay for lack of materials or components, despite a 13-week strike in the plant of a major subcontractor at the very outset of the program. The success of this purchasing project is attributed to consistent attention to the objectives listed in Rossome's.

4-Point Procurement Plan

1. **Parts for Production**
2. **Price, with Profit for Producers**
3. **Personnel with Potential**
4. **Precaution and Planning**

ON March 1, 1950, the writer was given the job of organizing a purchasing department for Northrop Aircraft's new Anaheim Division. This was a completely new facility and type of operation for the company, entirely separate from the activities of the parent organization. Our end product was to be in the field of precision optics, rather than aircraft, and our customer was the Army Ordnance Corps, rather than the Air Force, with which we had been accustomed to deal.

It was a difficult assignment, for several reasons.

Although a plant site had been purchased, no factory buildings for the division had been constructed, and it was necessary, in the initial stages, to conduct a multi-million dollar buying project from temporary, make-shift, and generally inadequate quarters.

Only two Northrop-trained buyers could be spared as the nucleus for purchasing operations that would eventually require the services of 56 people, and orders had to be placed immediately — without waiting for new employees to be hired and trained—if we were to procure the equipment and materials that would be required to start production as soon as our new plant was constructed.

Many new sources of supply had to be cultivated, due to the difference in our requirements list as we entered a new product field. At the same time, we had to meet exacting specifications in respect to quality and prices.

A combination garage and automobile display room at Lawndale, Cal., was rented for use as our temporary headquarters. Here, for a period of about two months, most of our time was devoted to the work of hiring new purchasing personnel and locating vendors.

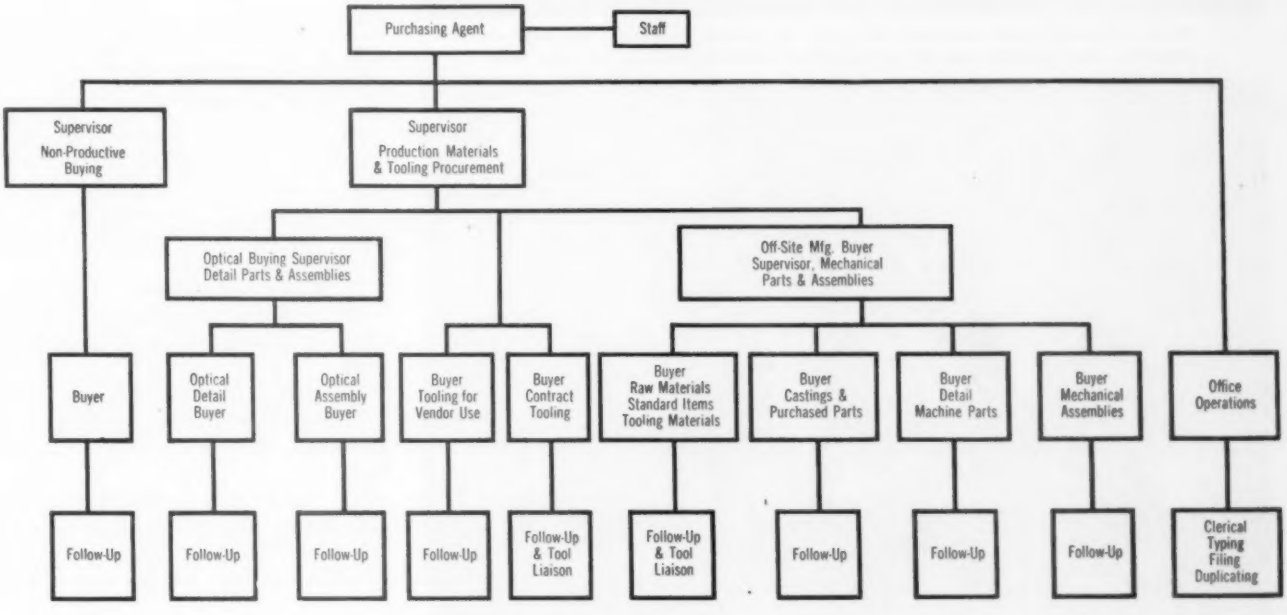
Laying the Foundation

The supply of labor in Southern California at that time was fairly abundant, but people with purchasing experience were, as usual, hard to find. So our principal aim in hiring was to acquire the services of men and women with the initiative and intelligence required to adapt themselves to our type of work after a minimum period of training. We were fortunate in this respect, and we have been able to

Purchasing Department

By Earl M. Rossome
Purchasing Agent
Northrop Aircraft, Inc.
Anaheim, Cal.

ORGANIZATION OF PURCHASING DEPARTMENT — NORTHROP AIRCRAFT, INC., ANAHEIM DIVISION



retain virtually all of the employees who measured up to our requirements, by following the policy of providing good working conditions and progressive pay increases.

In locating vendors, we were especially anxious to develop local sources of supply. Our purpose in this was to promote good community relations, minimize delivery charges, and avoid the shortages that might occur in the event of a national transportation tie-up due to a major strike or wartime disaster.

Developing Local Sources

It was impossible to rely on and patronize any substantial number of local vendors at the outset. Despite our desire to do so, and the willingness of potential sources, too many suppliers in Southern California lacked either the know-how, the facilities, or the capacity needed to meet our requirements. Therefore, many of our initial ordrs went to eastern firms and, in a few cases, we found it advisable to buy imported merchandise. For example, $258,883 of our $3 million allotment for machine tools, or about 8½%, was expended for equipment made in Europe.

However, we have managed to develop a considerable number of local sources of supply since our first orders were placed. This has been done by:

1. Providing financial assistance for those vendors who were unable to meet our requirements due to a lack of nothing other than cash reserves. This assistance usually consists simply of paying part or all of the cost of needed materials and parts prior to the date of delivery.

2. Dividing quantity orders among a number of small firms. For instance, in the purchase of special castings, we have found it practical to procure identical parts from two or more small foundries, neither of which has the facilities to produce all the castings we require. This of course eliminates the possibility of obtaining maximum advantages of quantity buying and discounts, but in many cases it has saved larger sums in terms of transportation charges.

3. Encouraging local manufacturers to acquire the facilities they



While bulldozers were uprooting 34 acres of orange trees at the Anaheim plantsite, Mr. Rossome was at work in Lawndale contracting for equipment.



By the time the pre-cast concrete walls were being hoisted into position, Rossome's buyers were already scheduling and expediting orders for production materials and parts.



As construction workers moved out of the new plant, production equipment installers were already moving in. Thanks to good procurement planning, production started without delay.

needed to handle Northrop orders. In some circumstances, this has been accomplished through the assurance of contracts, or by helping potential subcontractors to secure bank loans which could be guaranteed by the government.

Organization and Procedures

We were able to avoid many of the headaches associated with the development of forms, filing systems, and the like, by adapting, with very slight changes, the paperwork and procedures used by Northrop in the procurement of aircraft materials and parts. However, it was necessary to organize our purchasing department in conformity with unprecedented production requirements and the particular job to be done.

The accompanying chart indicates the precise nature of the departmental organization that has been found to be most satisfactory. The purpose of this organization is to facilitate procurement of merchandise in five distinct categories:

1. Productive material incorporated into our end product, exclusive of major contracts.
2. Major subcontracts negotiated with other prime contractors for the blanket procurement of productive parts.
3. Special contract tooling.
4. Non-productive supplies and services, not considered facility items.
5. Machinery, machine tools, equipment, and other items listed in our facilities appendix.

All materials, parts, and assem-

blies are normally purchased on a strictly competitive basis. At least three quotations are obtained before an order is issued, and each of these is analyzed in terms of:

a. The vendor's ability to make prompt deliveries.

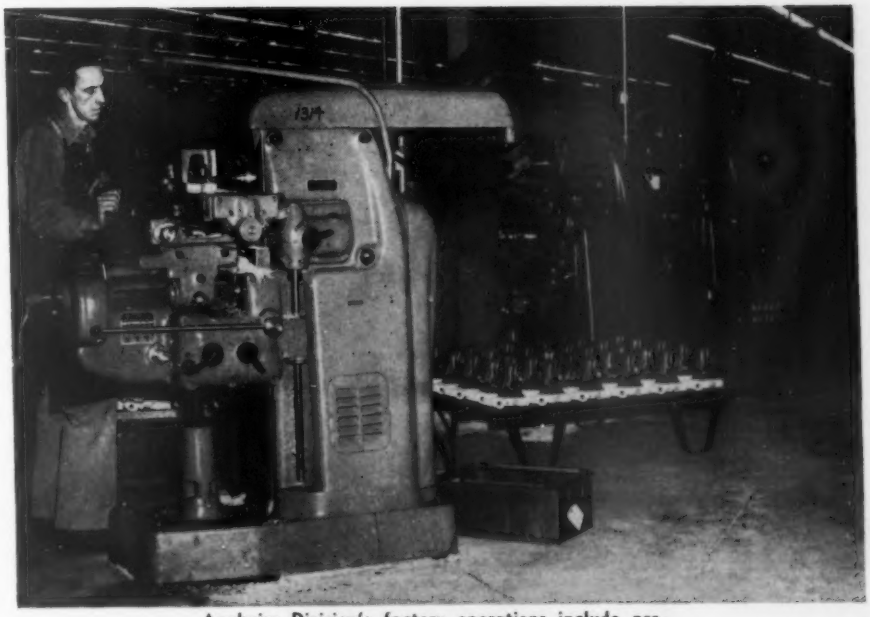
b. The vendor's ability to meet quality standards at the quoted price.

c. The vendor's ultimate value to our company and to the Army Ordnance Corps as a continuing source of supply for future production programs.

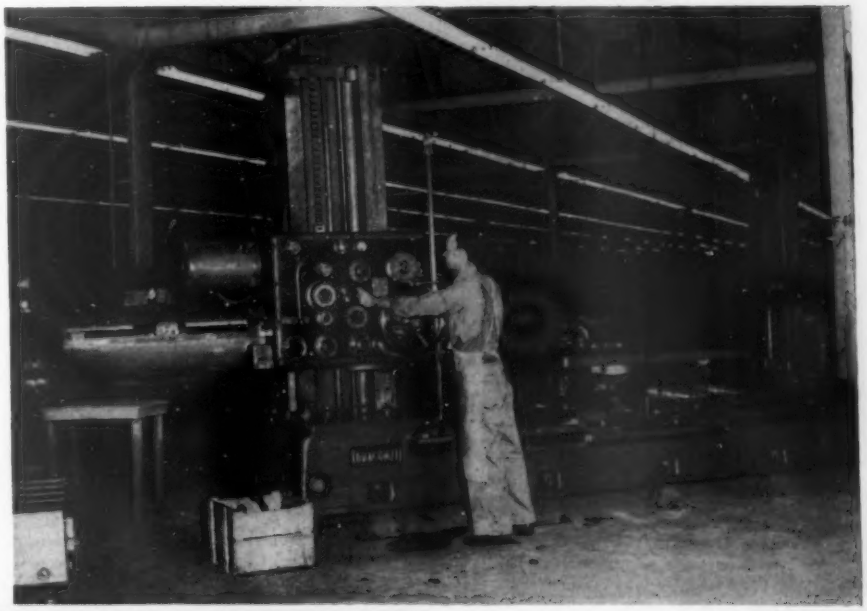
Price is naturally a prime consideration, but we have awarded a number of orders to firms who were not the low bidders—for example, where special tooling had to be obtained with unusual speed in order to avoid costly delays in our production program.

On some major parts of the program, our purchasing policy has been dictated by necessity, because there were no alternate sources of supply and the vendors had already tooled up for production work. Northrop was the last of seven prime contractors engaged to produce the required end product, most of whom had been in the program 12 to 18 months prior to our advent; hence, an initial "behind schedule" situation faced the purchasing department, were we to match our competitors' output. However, virtually all transactions of this nature have been covered by the standard redetermination clause.

Our policy in dealing with subcontractors is to make sure that the vendors have the facilities required to produce what we need at quoted



Anaheim Division's factory operations include precision finishing of castings purchased in the rough.



Horizontal boring mill, believed to be the largest of its type in the country, was imported from Italy.



Vacuum impregnation facilities for processing castings were among the many unusual items of equipment required.



Mr. Rossome and two of his buying supervisors discuss the problems involved in the purchase of a special glass part.



Northrop inspector checks optical lenses which seven different subcontractors have had a part in producing to specification.

The purchasing department at Anaheim is a compact, efficient functional unit, utilizing the specialized services of 56 people.



prices, and to redetermine each price quotation after 40% of the parts or assemblies designated by a given purchase order are delivered. In redetermining prices, we feel that the vendor is entitled to a 10% profit if he is operating with reasonable efficiency. No allowances are made for the vendor who fails to perform unsatisfactorily, but we do make price adjustments in favor of those subcontractors who have been unable to earn a reasonable profit due to circumstances that could not be anticipated or avoided. For example, when one of our vendors recently incurred the increased cost of overtime operations in order to accommodate us by delivering a batch of parts ahead of schedule, we felt obligated to pay more than the price that had been quoted for the parts. On the other hand, voluntary reductions in quoted prices have become commonplace, on the basis of cooperative vendor-vendee teamwork.

In the procurement of non-productive supplies and services, or standardized commercial parts and products, we have found that there is no general need for competitive bids, because an experienced buyer can usually determine the fairness of a supplier's quotations by comparing price lists. However, competitive bids are obtained when non-productive merchandise will involve a sizable expenditure, because terms and quantity discounts can be quite variable.

In buying capital items, such as heavy machine tools and plant equipment, we have made every effort to compare the products and prices of all potential suppliers. In most cases, our decisions are based on the ultimate value of each piece in our eventual production requirements. Where it is possible to buy two similar products at comparable prices, we have tended to favor the vendor who is in a position to make deliveries with maximum speed.

Priorities and Expediting

Like most companies engaged in the current rearmament program, we have been able to obtain priorities and allocations for the critical materials required. However, considerable expediting has been necessary to secure many of the products we have ordered with minimum lead time allowances.

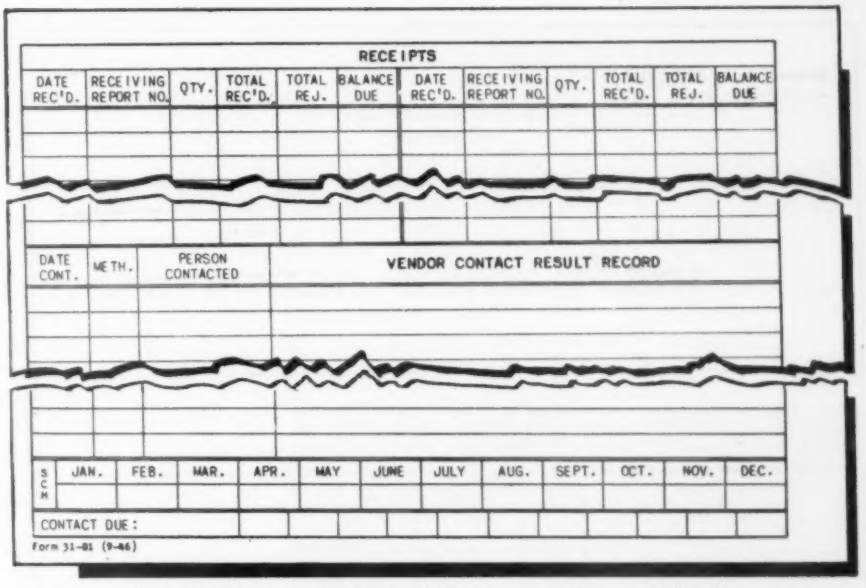
Expediting is the direct responsibility of the buyer who places an order, and all buyers are assisted in this respect by specially trained follow-up personnel. In addition to checking up on the progress that is

being made by the various suppliers, our buyers and follow-up men are expected to maintain cordial relations and expedite service by helping vendors in every possible way, as by suggesting production improvements and interpreting specifications.

Our need for good vendor relations is especially critical because we are becoming increasingly dependent on the services of relatively small subcontracting firms. In order to obtain substantial quantities of a small glass part, for instance, we have found it necessary to patronize seven different firms, each of which specializes in a single glass fabricating operation.

To the casual observer, it may seem that such use of subcontractors' facilities would be impractical. Indeed, that was our own opinion a year ago, and we planned to procure all of these parts from one prime contractor in the east. Then the prime contractor's employees walked out on strike, and we were faced with a shortage of parts and the prospect of delaying vital defense work.

By placing orders covering a single part with seven local firms, we were able to get what we wanted without delaying our own produc-



RECEIPTS

DATE REC'D.	RECEIVING REPORT NO.	QTY.	TOTAL REC'D.	TOTAL REJ.	BALANCE DUE	DATE REC'D.	RECEIVING REPORT NO.	QTY.	TOTAL REC'D.	TOTAL REJ.	BALANCE DUE

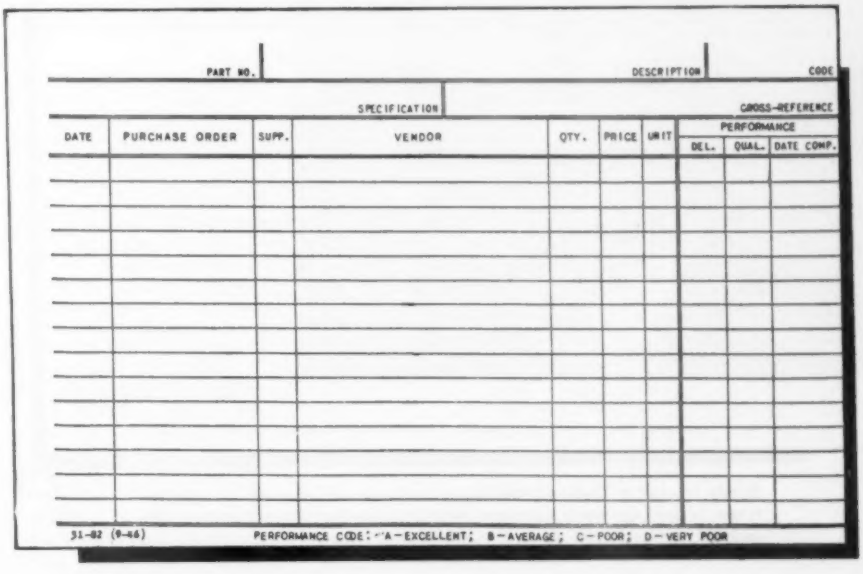
DATE CONT.	METH.	PERSON CONTACTED	VENDOR CONTACT RESULT RECORD

S C M	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.

CONTACT DUE :

Form 31-81 (9-46)

Expediting is a responsibility of the buyer. Follow-up action is scheduled and recorded on the same form as the receiving reports.



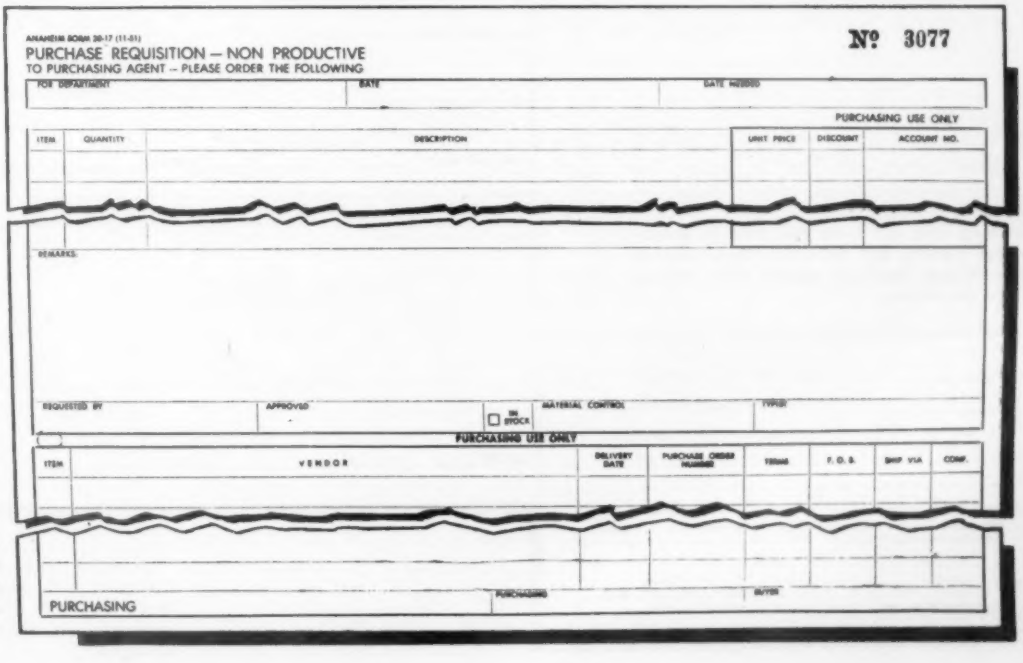
PART NO. | DESCRIPTION | CODE

SPECIFICATION | CROSS-REFERENCE

DATE	PURCHASE ORDER	SUPP.	VENDOR	QTY.	PRICE	UNIT	PERFORMANCE DEL.	PERFORMANCE QUAL.	PERFORMANCE DATE COMP.

31-82 (9-46) PERFORMANCE CODE: A—EXCELLENT; B—AVERAGE; C—POOR; D—VERY POOR

The Purchase Record is unique in rating vendor's performance on each order in respect to delivery, quality, and date of completion.



ANAHEIM BORM 30-17 (11-51)

PURCHASE REQUISITION — NON PRODUCTIVE

Nº 3077

TO PURCHASING AGENT — PLEASE ORDER THE FOLLOWING

FOR DEPARTMENT | DATE | DATE NEEDED

PURCHASING USE ONLY

ITEM	QUANTITY	DESCRIPTION	UNIT PRICE	DISCOUNT	ACCOUNT NO.

REMARKS.

REQUESTED BY | APPROVED | ☐ IN STOCK | MATERIAL CONTROL | TYPED

PURCHASING USE ONLY

ITEM	VENDOR	DELIVERY DATE	PURCHASE ORDER NUMBER	TERMS	F. O. B.	SHIP VIA	COMP.

PURCHASING | PURCHASING | BUYER

The Purchase Requisition is a working form. Northrop's purchasing policy is based on competitive bidding; proposals are tabulated and compared on the Requisition before the Purchase Order is issued.

ORDNANCE PRICE INSPECTION DATA

NORTHROP AIRCRAFT, INC
ANAHEIM DIVISION

P.O. NO. _____

AWARDED TO _____

QUANTITY DESCRIPTION PRICE

OTHER BIDS	DATE	PRICE QUOTED	DELIVERY QUOTED	REMARKS

IF AWARD WAS MADE TO OTHER THAN LOWEST BIDDER, REASONS THEREFORE:

IF COMPETITIVE BIDS WERE NOT OBTAINED, REASONS THEREFORE:

PREPARED BY _____

DATE FORWARDED _____

Ready for audit. Government inspectors have evidence of the competition invited on each purchase, and reasons for the purchasing decision.

tion activities by as much as one day—and without paying a premium price for the parts (due mainly to savings in shipping costs). Of course it is true that a failure on the part of any one of our seven local subcontractors could still retard our production program; but that isn't likely to happen so long as we have access to alternate sources of supply. And, in this connection, it should be remembered that subcontractors can be replaced more easily than prime contractors.

No Supply Failures

Since the Anaheim Division began production, with the completion of the new plant in November, 1951, there have been no production delays due to a failure on the part of the purchasing department to obtain equipment, tooling, materials, or parts as they were needed. This is truly a remarkable record in view of the fact that we literally had to start from scratch, and our activities have not been supplemented in any way with those of purchasing personnel in other Northrop divisions. In some respects, it must be acknowledged that we have enjoyed our share of good luck.

We were especially fortunate in acquiring the services of four supervisors and ten buyers who had the sort of imagination and resourcefulness that is required to build up the odds that favor successful operations in any purchasing organization.

Northrop does not close the door to unsuccessful bidders, but maintains their interest by notifying them of awards and inviting future quotations.

Gentlemen: DATE

Please be advised that you were not awarded the contracts covered by our quotation requests listed below:

Bid No.	Part No.	Date of Bid

We appreciate your cooperation in submitting these bids and assure you that your future quotations will continue to be given every consideration.

Thank you.

Procurement Division
NORTHROP AIRCRAFT, INC.
ANAHEIM DIVISION

PURCHASE ORDER CLOSURE NOTICE

NORTHROP AIRCRAFT, INC.

TO: ACCOUNTS PAYABLE
RECEIVING
PROCUREMENT FILES

DATE _____

PURCHASE ORDER _____ VENDOR _____

IS NOW CONSIDERED COMPLETE. RECEIVING RECORDS INDICATE THAT QUANTITIES ACCEPTED SATISFY THE PURCHASE ORDER REQUIREMENTS EXCEPT AS NOTED.

PURCHASE ORDER ITEM NO.	ORDERED	ACCEPTED

APPROVED _____ BUYER DISAPPROVED _____ BUYER GROUP _____

Purchasing and Accounting files are not cluttered with dribs and drabs of open and back orders. Purchase Orders are closed out promptly and officially as requirements are satisfied.

The Purchasing Job at Savannah River Plant

By H. F. Jones

Address at the quarterly meeting of the Carolinas-Virginia P. A. Association, Asheville, N. C., June, 1952.



H. F. ("Hack") Jones is widely known through his service as President of the National Association of Purchasing Agents in 1950-1951. An electrical engineer by training, he has been a member of the Purchasing Department of E. I. du Pont de Nemours and Company, Wilmington, Delaware, since 1935, being in charge of machinery and equipment purchases for that organization. When du Pont undertook the construction of Savannah River Plant at the request of the government, and it became evident that a gigantic procurement program would be involved for this special project alone, Mr. Jones was placed on special assignment as Assistant Purchasing Agent for Atomic Construction, to direct and coordinate the purchasing phases of the job. For the past several months he has maintained offices with Gibbs & Hill, Inc., New York, who are participating in the design contract, as well as in the Wilmington headquarters of the du Pont purchasing organization. About 95,000 purchase orders, originating from seven separate points, will be required in completing this vast purchasing program.

The Savannah River Plant has been described as the greatest construction project in the history of mankind. This plant is being designed, built, and will be operated by the Du Pont Company, for the Atomic Energy Commission. It will be located on the Savannah River near Aiken, South Carolina. It will produce fissionable materials to be used in connection with the Atomic Energy Program.

The Du Pont Company was selected as prime contractor because of its experience in this type of construction gained during World War II. The Government reimburses the Company for all costs incurred. We have "atomized" several hundred people to do this work. For this job, over and above actual cost, the Company will receive a fee of $1.00, before taxes.

Some Big Projects of the Past

If this is the largest project of its kind in the history of the world, it behooves us to look at some other construction jobs, by way of comparison. The *Great Wall of China* was built about 228 to 210 B.C. It was constructed by Ch'in Shih Huang Ti along 1500 miles of the North and Northwest border of China. Its purpose was to defend China against nomadic raiding parties. It consists of a facing of brick or granite, filled with earth and reaching a height of over 20 ft. forming a roadway on top about 13 ft. wide. At regular intervals of about 100 yards there are fortified towers.

In spite of its uniformity, the wall is intimately a part of the landscape, rising in many parts almost like one of nature's own creations. It is truly a remarkable and immense piece of work. It is the greatest and most monumental expression of the absolute faith of the Chinese people in walls.

The *Panama Canal* is a colossal monument to the ingenuity of the engineers who built it. Running approximately North and South and extending a distance of 40 miles, it links the Atlantic with the Pacific Ocean. The Canal was constructed in a period of 7 years although a total of 10 years was required including preliminary surveys and preparation for construction. About 240,000,000 cubic yards of earth were excavated. The Canal itself, with all its dams, locks, breakwaters, channels, and buildings, cost $336,000,000.

A Billion Dollar Job

Mere words are hardly adequate to describe the immensity of the Savannah River Plant. Picture an area consisting of 200,000 acres, 315 square miles, about 1/3 of the total land area of Rhode Island. The area is irregular in shape, about 22-1/2 miles by 22 miles, with the Savannah River touching approximately 31 miles along the Project boundry. It is expected that about 32,000,000 cubic yards of earth must be excavated during construction. That



Temporary administration buildings for construction at Savannah River Plant. Magnitude of the project is indicated by the acres of parking space required, accommodating some 1,200 cars even at this early stage. At the peak of construction, about 45,000 workers will be employed, and 105 miles of modern, permanent highways will be installed.

Photographs by courtesy of the United States Atomic Energy Commission.

amount of earth would cover a 1,000 acre farm with a blanket 20 ft. thick. We expect to use about 75,000,000 board feet of lumber. We estimate that about 126,000 carloads of material will be used. If you were to stop your car at a railroad crossing and wait until 126,000 carloads of material highballed past, you'd better bring your lunch, because you'd be there the better part of a week.

The patrol force required to police the area, to protect the property from sabotage and to safeguard the security of secret information would equal the size of the police force of Charlotte. There will be about 250 permanent buildings, about 66 miles of railroads, and 105 miles of modern highways. About 45,000 construction workers will be employed at the peak of construction and 7,200 people will be permanently employed during operations. The project will cost about $1,250,000,000.

This job is so gigantic that even after one has seen it he is quite likely to feel like the country boy who went to the zoo and saw the giraffe. He shook his head and said, "There ain't no such animal."

Organizing for Construction

Construction of a project of this size necessarily entails problems not usually encountered in a more normal construction job. One of the first steps to be taken then was the organization of a field construction force to handle the construction. The top Du Pont man in the field is R. K. Mason, whose title is Field Project Manager. Mr. Mason reports directly to the Engineering Department Management in Wilmington. This organization is responsible for the construction of Du Pont's normal plant expansion program.

The field construction force is patterned after our normal practice in this type of work, scaled up, of course to handle a job of this size. Operating under Mr. Mason's jurisdiction are area superintendents in charge of the construction of the various manufacturing areas, craft superintendents, and service supervisors, including the field purchasing agent. Mr. Mason also has access to the assistance of various specialists and consultants in our Wilmington Engineering Department.

Construction work on the Project site proceeds according to the design of the plant which is handled by the Design Division of our Wilmington Engineering Dept. It was determined during the early stages of design analysis that considerably more personnel would be required for design than was available from our Wilmington Design Division. Due to the magnitude of the job, additional design contractors were brought into the picture under Du Pont supervision. Five such design contractors were added to the force. They are Blaw Knox Construction Company of Pittsburgh, Pa., American Machine & Foundry Company, Gibbs & Hill, Inc., The Lummus Company, and Voorhees, Walker, Foley & Smith all of New York City. In each of these cases, the design contractor was made responsible for procurement of equipment and construction material for his portion of the Plant.

That, then, is a brief description of the organizational set-up. Since our contract is with the Atomic Energy Commission, all of our operations are under the constant surveillance of the Commission. Operation offices have been set up by the Commission at the Plant site and in Wilmington. Mr. Curtis A. Nelson of A.E.C. is in charge of this phase of the work with the title Manager, Savannah River Operation Office.

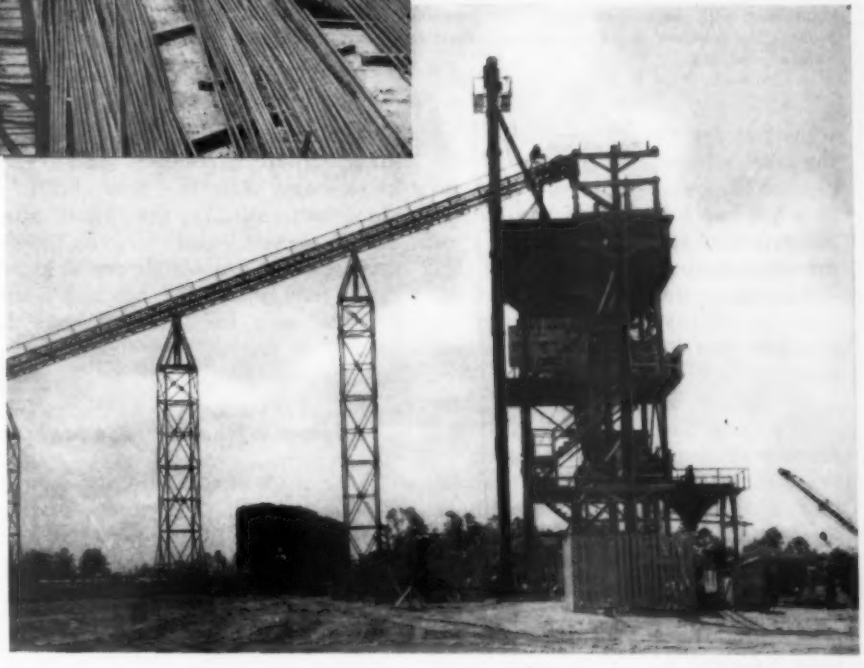
Organizing for Procurement

Now to get to the purchasing job. First let me say a few words about how purchase requirements originate. Taking technical information available from the scientist, the Design Division makes flow sheets. These are simply schematic diagrams which show that you start over here with something, bring it through here and do something to it on the way, and end up over here with something else. From the flow sheets, arrangement drawings are made which place certain equipment in relation to other equipment with which it is to operate. From the arrangement drawings, detail drawings are made. These detail drawings provide a basis for fixing purchase requirements. These are enumerated on what we call a material and equipment list. These lists contain all the items required for



About 126,000 carloads of materials must be purchased, scheduled, and delivered. Requirements of stainless steel tubing amount to one-half of the nation's total annual production — a real purchasing challenge even with the aid of government priorities.

Special materials handling equipment and 66 miles of railroad trackage are required in receiving incoming shipments of material and putting them to work in the construction process.



the construction of the plant. A detail specification or drawing is then made up for each item, and a procurement file is begun.

Let us take a moment now to see what has happened organization-wise to handle the purchasing job. First of all, there is a clear cut division of responsibility for procurement between the field organization and the home office organization. Certain types and classes of material can best be procurred by the field forces and others, best by the home office organization. This division is spelled out in detail so that both elements know the extent of their responsibility. A field purchasing organization has been set up under the jurisdiction of the field procurement supervisor. The organization is completely integrated with a staff of buyers who work on a commodity basis, a clerical group, priorities group and the necessary expediting force.

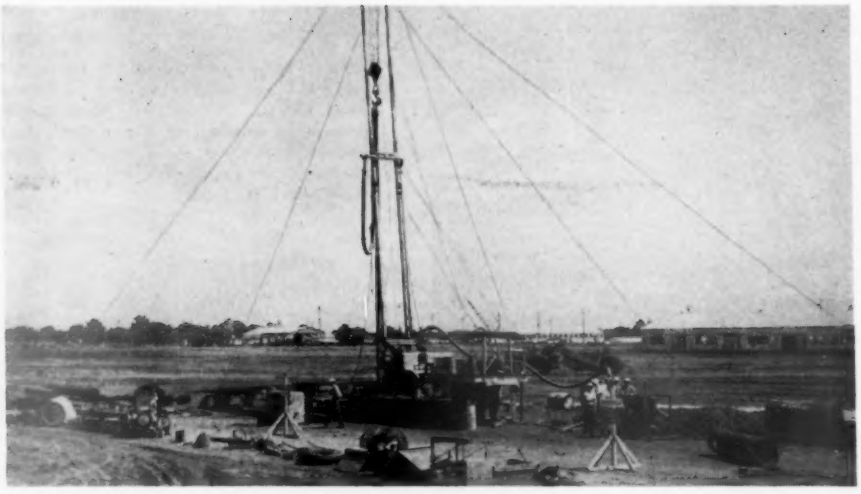
The home office procurement is handled by the Purchasing Department in Wilmington, supplemented by purchasing departments in the offices of the design contractors. It is estimated that about 95,000 purchase orders will be required to complete procurement for the entire job. These orders will then originate from seven separate points, the field organization at Savannah River, the Wilmington Office and the offices of the five design contractors. Liaison between all points is maintained by the Wilmington Purchasing Department. Inspection and expediting of all home office procurement is handled by the Wilmington Construction Division. Through regular reports, this group keeps all procurement points informed as to conditions in vendors' plants and quality of work being produced.

Purchasing Procedure

Normally, purchases are made on the basis of competitive bidding. A complete specification is written in the Engineering Department and forwarded to the Purchasing Department. Inquiries are originated by the buyer charged with the responsibility of handling the particular item. Bids are received as a result of the inquiry. The bids are analyzed in the Purchasing Department and tabulated. If the particular item under consideration requires an engineering review, the complete file is forwarded to the engineer involved. Purchasing and Engineering then jointly agree upon the selection of a vendor. If the dollar value of the requirement is in excess of a pre-determined sum, the joint recommendation is presented to the A.E.C. representative for approval.

When all the approvals have been given, the successful vendor is notified and the order is typed and mailed. Special Inquiry and Order forms are used throughout which spell out the relationship between Design Contractors, the Du Pont Company, and the Government. Attention is drawn to the fact that the Order is subject to the Renegotiation Act, and that title on the equipment or material passes to the Government at a specified time.

All this sounds like very much of a routine job and it could be if it



Concurrent with the construction of 250 permanent buildings that will make up Savannah River Plant is the problem of getting the equipment to go into them, much of which is of types never before produced.

were not for two facts—the size of the project, and the nature of the project. Remember, we are engaged in what has been called the largest construction job in the history of mankind. In buying for a job of this size we must inevitably run head-on into the ability of our country to produce certain items in sufficient quantity in the time allotted.

A typical example is stainless steel tubing. The current A.E.C. expansion program is consuming stainless tubing at a rate equal to about half of the total annual national production. Production of the stainless tubes required for the job then became an industry problem. Under the auspices of the National Production Authority, meetings were held attended by representatives of the industry, the Commission and Du Pont. Each Company was asked how much tubing it could handle, and the bulk of the business was divided in that manner. The residue was handled by manufacturers who do not normally produce this material. N.P.A. assisted each producer in procuring the necessary raw material.

Reinforcing steel, in the amount of 85,000 tons, required in a big hurry was another such industry-wide problem.

Underground water lines was another example of an industry problem. The manufacture of many miles of reinforced concrete pipe of unusually large diameter was a real poser. Shipping empty tubes of this size and in these quantities around the countryside would have been an uneconomical proposition. We were happy to find the solution presented to us in this manner: Two companies which are normally competitors pooled their resources, their equipment, their personnel, and their know-how. Jointly, they built a plant adjacent to the plant site. Steel, cement, and all the other necessary raw materials are shipped to the new pipe plant, fabricated into pipe, and the finished pipe is hauled to the side of the ditch at the project.

Buying Without Precedent

The nature of the job imposed additional purchasing problems. Some of the equipment required was of such special nature that nothing like it had ever been produced before. Such requirements send us scurrying in all directions to find suppliers who come closest to having the required equipment and know-how to do the job. One such requirement was a special gadget which had to be produced in large quantities and required extremely accurate machine tools plus the knowledge of assembling various small parts into a satisfactory operating unit. We searched far and wide and ultimately found the tool and die shop of an automobile manufacturer where the job could be done. Special equipment for the installation, assembly, and removal of machinery by remote control all present unique procurement problems.

It Can Happen Only Here

This story might be interesting but it would be rather pointless without a moral. And here is the moral of the story as I see it. This gigantic plant being built at your doorstep epitomizes America and our Free Enterprise System. In making this statement, I am overlooking one ironic fact—numerous editorials have pointed out that "the Government is trying to break up the industrial concern which it asked to undertake the development of the Hydrogen Bomb—simply because this concern was one of the few in the world big enough to handle the job." But, overlooking that fact, the job is truly American in all its aspects.

Many skills and crafts are combining their talents; many businesses—large, small, and medium—are combining forces, all with the sole purpose of getting the job done. I have already mentioned the number of people engaged in the work. It might be interesting to review some statistics on the number and size of businesses engaged.

Those of you who are familiar with industrial construction will know about how many millions of dollars are being spent for labor and for material and equipment. There have been comments from time to time that big business is "hogging the show" on this job. Government authorities do not place the major responsibilities for these large contracts on large corporations because they have any peculiar affection for big business, nor on the other hand do they lack confidence in small business. The objective is simply to get the job done quickly and effectively by whatever business units are best suited for the job.

We are following this policy at the Savannah River Plant. We are planning to subcontract a great variety of construction such as excavating, grading, piping, electrical work, and so on through to exacting instrument controls and electronic devices.

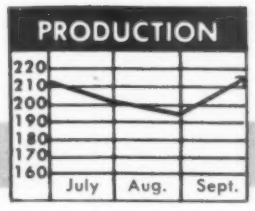
Let me illustrate, from a random subcontract at Savannah River, the economic chain reaction resulting from the placing of one subcontract. We placed an order with a boiler manufacturer for furnishing and erecting boilers on the plant site. The principal subcontractor who received the boiler contract subsequently let orders to his suppliers for structural steel, boiler tubes, control instruments, soot blowers, steel plate, pulverizers, insulation, fuel burning equipment, motors, and so on. The total number of suborders amounted to about 300, and these suppliers in turn placed about 2500 orders on their various suppliers. Thus, one prime purchase order starts the wheels turning in more than 2,000 plants.

You may be surprised to know of

(*Please turn to page* 410)

Trend of Business
As Seen In Current
News & Statistics

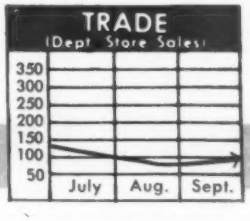
Where We Stand



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1935-1939=100	212 (est.)	191	217	+10.9	— 2.3
Steel Production (Weekly)	000 net tons	2,115	2,019	2,017	+ 4.7	+ 4.8
Electric Power Production (Weekly)	mil KWH	7,324	7,495	6,795	— 7.3	+ 7.8
Bituminous Coal Production (Weekly)	000 net tons	9,100	9,600	9,298	— 5.2	— 2.1
Auto, Truck & Bus Output (Weekly)	units	102,126	44,262	97,547	+130.7	+ 4.7
Petroleum Output (Weekly)	000 bbls.	6,367	6,181	6,199	+ 3.0	+ 2.7



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS)	1947-49=100	112.1	111.8	113.7	+ 0.3	— 1.4
Farm Products	1947-49=100	109.9	110.2	110.4	— 0.3	— 0.5
Metals & Metal Products	1947-49=100	123.8	121.9	122.2	+ 1.5	+ 1.3
Structural Products	1947-49=100	113.8	113.8	113.6	0	+ 0.2
Steel Billets (Pittsburgh)	net ton	$59.00	$56.00	$56.00	+ 5.3	+ 5.3
Steel Scrap, heavy melting, Pitts.	ton	43.00	43.00	44.00	0	— 2.3
Copper, electrolytic	lb.	.24½	.24½	.24½	0	0
Rubber (rib-smoked sheets)	lb.	.26¾	.29¾	.52	—10.1	—48.5
Wheat, No. 2	bu.	2.70½	2.66⅜	2.72	+ 1.5	— 0.6



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1935-39=100	100	90	100	+11.1	0
Commercial Failures (Dun & Bradstreet)	no.	110	123	116	—10.6	— 5.1
Freight Carloadings	cars	746,044	782,171	732,769	— 4.6	+ 1.8

FINANCE

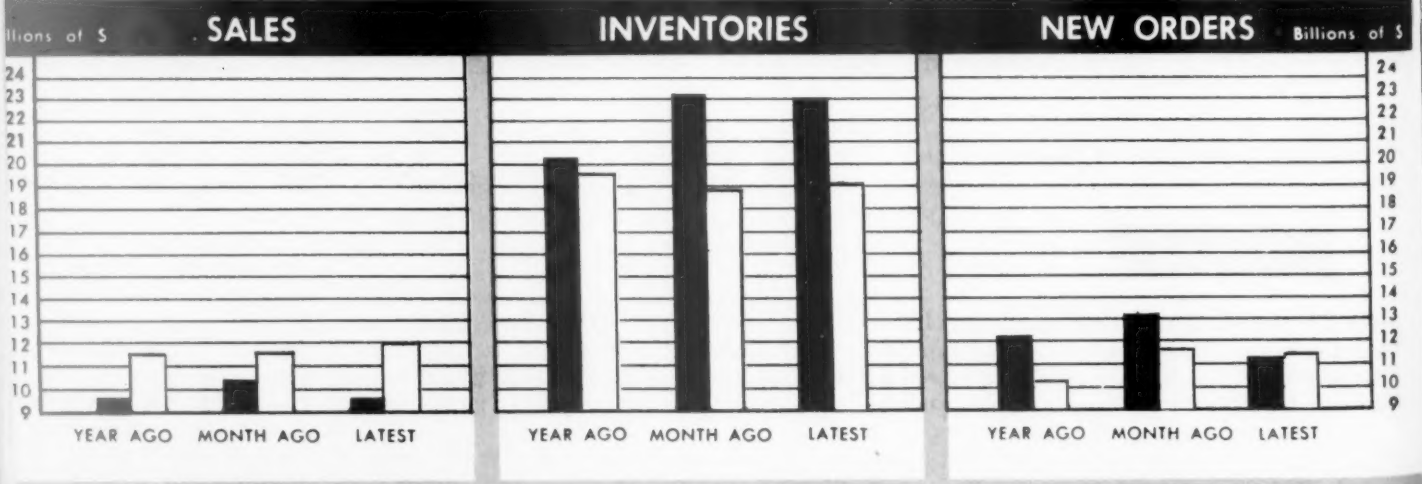
Stock Prices (Standard & Poor's)	1926=100	196.3	200.7	186.6	— 2.1	+ 5.2
Bank Clearings (New York)	mil $	7,487	7,782	7,874	— 3.8	— 4.9
Federal Reserve Credit	mil $	24,872	24,553	24,384	+ 1.3	+ 2.0
Currency in Circulation	mil $	29,364	29,051	28,216	+ 1.1	+ 4.1

MANUFACTURERS' SALES, INVENTORIES AND NEW ORDERS

	1951		1952			
	July	Dec.	April	May	June	July (p)
Value of Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	21,249	20,761	23,324	23,007	21,848	21,700
Durable goods industries	9,666	9,786	11,407	11,345	10,259	9,665
Primary metals	1,974	1,853	1,922	1,843	998	1,058
Fabricated metals	1,026	1,076	1,210	1,178	1,021	1,045
Electrical machinery	870	1,034	1,067	1,099	1,186	1,138
Machinery (except electrical)	1,708	1,926	2,217	2,176	2,104	2,012
Motor vehicles & equipment	1,467	1,357	1,792	1,887	1,872	1,181
Transportation equipment (exc. motor vehicles)	495	610	702	740	682	716
Furniture and fixtures	244	242	285	299	320	344
Lumber products (exc. furniture)	623	587	849	744	764	791
Stone, clay and glass products	508	418	474	509	487	512
Professional, scientific instruments	232	221	298	281	261	298
Other industries, incl. ordnance	519	462	590	590	564	568
Nondurable goods industries	11,583	10,975	11,917	11,662	11,588	12,035
Food and kindred products	3,032	2,979	3,144	3,180	3,085	3,163
Beverages	591	582	649	679	732	746
Tobacco products	278	288	326	311	313	328
Textile-mill products	1,182	1,110	1,220	1,140	1,086	1,139
Apparel	940	727	799	743	792	972
Leather and products	298	208	208	220	229	212
Paper and allied products	637	601	610	607	605	635
Printing and publishing	740	782	898	876	808	835
Chemicals and allied products	1,535	1,408	1,556	1,552	1,509	1,556
Petroleum and coal products	1,912	1,927	2,069	1,916	1,997	2,016
Rubber products	438	363	438	n.a.	434	n.a.
Book Value of Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	39,908	42,014	42,513	42,458	42,213	42,128
Durable goods industries	20,304	22,675	23,387	23,474	23,246	23,003
Primary metals	2,426	2,778	2,825	2,847	2,879	2,879
Fabricated metals	2,133	2,438	2,438	2,417	2,370	2,348
Electrical Machinery	2,574	2,870	3,025	3,026	3,013	2,985
Machinery (exc. electrical)	4,509	5,112	5,345	5,325	5,250	5,091
Motor vehicles & equipment	2,455	2,700	2,670	2,716	2,588	2,507
Transportation equipment (exc. motor vehicles)	1,657	2,176	2,420	2,457	2,448	2,521
Furniture and fixtures	588	520	535	544	531	525
Lumber products (exc. furniture)	1,017	1,092	1,060	1,060	1,059	1,050
Stone, clay and glass products	837	841	930	935	960	951
Professional, scientific instruments	649	718	708	716	720	723
Other industries, incl. ordnance.	1,458	1,428	1,431	1,430	1,430	1,423
Nondurable goods industries	19,605	19,339	19,126	18,985	18,967	19,125
Food and kindred products	3,554	3,386	3,435	3,417	3,385	3,369
Beverages	1,209	1,193	1,244	1,246	1,230	1,207
Tobacco products	1,656	1,836	1,776	1,793	1,782	1,820
Textile-mill products	3,222	2,814	2,586	2,508	2,542	2,592
Apparel	1,746	1,446	1,263	1,284	1,315	1,422
Leather and products	652	567	543	528	518	515
Paper and allied products	917	1,005	1,087	1,071	1,058	1,034
Printing and publishing	702	757	753	729	717	674
Chemicals and allied products	2,850	3,000	3,038	3,033	3,062	3,062
Petroleum and coal products	2,481	2,535	2,570	2,544	2,561	2,635
Rubber products	616	799	832	n.a.	795	n.a.
Manufacturers' New Orders (Unadjusted)						
All Manufacturing industries	22,556	20,344	23,113	21,797	24,772	22,574
Durable goods industries	12,235	9,889	11,893	10,650	13,033	11,205
Nondurable goods industries	10,321	10,455	11,220	11,146	11,738	11,369

p — preliminary n.a. — not available r — revised

SALES, INVENTORIES AND NEW ORDERS



STRAWS IN THE TRADE WIND

● Even in this age of impressive record-breaking accomplishments there's one new record that few, if any, people will be proud of. Latest figures of the National Industrial Conference Board show that its consumers' price index has reached a new peak, with an advance of 0.8% over the month before. Increases in fuel, food, housing and sundries forced the index up, despite continued decreases in the clothing and house-furnishings components. The purchasing value of the consumers' dollar is now 54.9 cents (January, 1939 = 100). This is its lowest value in the history of the Board's index.

● There's been a substantial improvement in business conditions around Chicago, according to the latest survey of the Purchasing Agents Association of Chicago.



This interpretation is based on the fact that the number reporting better business now balances with those reporting to the contrary. The latter had been in the majority for the past few months. Key questions indicate that: deliveries are faster; prices are higher; inventories are being kept down ("it may be assumed that industry is not worried about the availability of materials"); employment is better; production is reported up by the largest number of P.A.'s since January; reports of unfilled orders are now twice the amount reported the month previously.

● Plant and equipment spending is still zooming upward. Latest combined survey of the Securities Exchange Commission and the Department of Commerce shows that business is planning to spend $14,300,000,000 on capital investments during the second half of 1952. This would bring the year's total to $27,500,000,000, an increase of 4% over 1951, when the previous record for capital outlay was established. Increases of more than 30% are expected in such industries as non-ferrous metals, rubber, petroleum refining, iron and steel.

● If you've had your eye on a $20,000 home, but balked at the $6,450 down payment, you'll be interested to know that Government requirements have been eased, and the down payment is now only $6,000. This and other changes in credit regulations were announced by the Federal Reserve Board and the Housing and Home Finance Agency. The changes were based on the Defense Production Act's clause that calls for lowering real estate credit restrictions whenever new housing starts fell below the annual rate of 1,200,000 for three consecutive months. The third month was August, when total starts slumped to 99,000, or an annual rate of 1,035,000.

● The machine tool picture may soon be getting a little brighter. That's the word from officials of the National Production Authority. In a meeting with the Broach Cutting Tool Industry Advisory Committee, NPA spokesmen reported that while the present supply of certain machine tools is still precarious, orders are beginning to drop off. March or April, 1953, they said, should show considerable improvement. Demands for jet engine broaches should be greater in the next six months, they added.

● A million-dollar venture in a new wildcatting technique is being undertaken by the Monterery Oil Company. The company plans to tap the vast petroleum pools under the Pacific Ocean from a man-made island in the sea. This will be the first operation of its type on the Pacific Coast, although similar installations have been set up in other oil-producing areas. There are an estimated four billion barrels of oil under California's tidelands. Monterey's first drilling effort will go down about 7,000 feet, the bottom of potential oil bearing strata.

● Natural gas is increasing its push against coal as a source of electric power — but coal is still by far the king in that department. The Federal Power Commission reports that the use of natural gas by electric utilities in the U. S. in July hit a record 98,700,000,000 cubic feet, 10.5% over the June record, and 18.6% over July, 1951. Production of electricity from coal decreased 2.2% in July, 1952, as compared with a similar period last year.

● Foreign trade continues to slide, and the outlook for the rest of the year is causing concern. Exports in July dropped off again, this time to a level of $1,012,900,000 which is 24% under the average for the first half of this year, and 20% below the 1951 monthly average. They were more than $173,000,000 below the figure for July, 1951. Exporters were reported as seeing little hope for any upturn during the balance of the year. U. S. imports in July also declined, going to $836,000,000 from the June figure of $860,000,000. They were 7% below the average for the first six months of 1952, and 9% under the 1951 monthly average.



● Industrial production and employment fell in all major European industrial countries except France during the first quarter of 1952, according to the United Nations' Economic Commission for Europe. The report is gloomy on future prospects for the European economy, since it appears to be unable to put down inflation at home.

International Trade Is More Than A One-Way Street

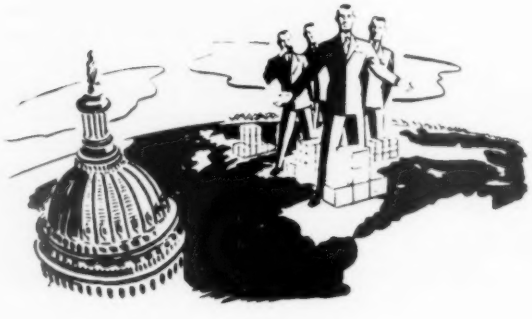
Trade by definition implies a give and take situation—and even the Iron Curtain cannot prevent that. Traditionally, trade between East and West has been a highly practical affair—each finding a market for its production and at the same time obtaining goods and materials it needed, and at favorable terms.

The division of the world roughly into two hostile blocs following World War II because of the actions of the Soviet Union has altered the natural patterns of East-West trade. In addition, the United States, as leading power of the free world has been extremely leery of encouraging commerce between East and West that might strengthen the Soviet or its satellites.

Yet we have done little, in a practical way, to fill in the void that would be created if Western nations were forced to completely cut off all trade with nations in the Russian orbit. True, we have tried by means of subsidies to help European nations meet their balance-of-payment problems, but such a method is not normal. It puts too much burden on the American taxpayer and leaves the Europeans dissatisfied and uncomfortable.

The problems created by this situation are now receiving a great deal of attention, and demands that trade in non-strategic materials be stepped up between the two power areas are being heard in many responsible quarters—quarters that under no circumstances could be suspected of harboring any sympathetic consideration for the Soviets.

A recent study by the United States Council of the International Chamber of Commerce has forcefully illuminated the more important aspects of the East-West trade controversy. Here are some of the highlights of the report:



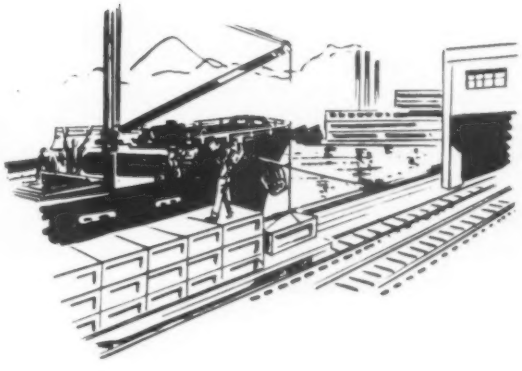
The problem of trade between the free countries of Europe and those in the Soviet bloc is both politically delicate and technically difficult. The U.S. Government has displayed, so far, two attitudes on the subject which stand in at least partial contradiction to one another. In the U.N., for instance, we have shown a favorable attitude toward East-West trade. On the other hand, some of our export controls treat the trade as highly undesirable. So far, the Council says, we have looked almost exclusively on the *export* side of the question.

We have to look at the import side as well. Western Europe obtains important commodities from Eastern Europe in return for the things she exports. Principal imports from Eastern Europe are those which can be obtained on terms better than those available anywhere else. This two-way trade is to a large extent comparable to barter, inasmuch as imports and exports tend to be a part of the same complex deal.



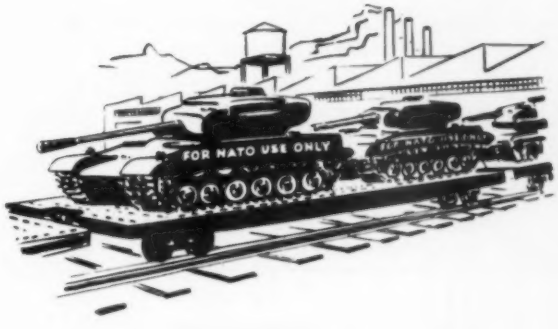
In order to enable Western Europe to curtail trade with the East, alternative trade channels need to be developed. But that's not as easy as it sounds. The alternative sources of supply must be of comparable price. The supplies from these new sources have to be shipped to the country of destination — and shipping space is getting scarcer. Countries which would be receiving imports from the new sources must be in a position to pay for them — and many of them are woefully short of money, particularly dollars.





Principal imports of Western European countries from the East include coal, timber, steel, sugar, meat, eggs and tobacco. Individual countries depend substantially on Eastern Europe for specific commodities. Italy, for example, gets about 14.5% of its coal from the Soviet bloc. On the other hand, the Iron Curtain countries get largely manufactured goods from the West, and this tends to strengthen their economic potential, even though no military end items of any kind are exported to them. In the end a balance has to be struck between the advantages we and our allies get from this trade and those it gives the Soviet bloc. How can we do it?

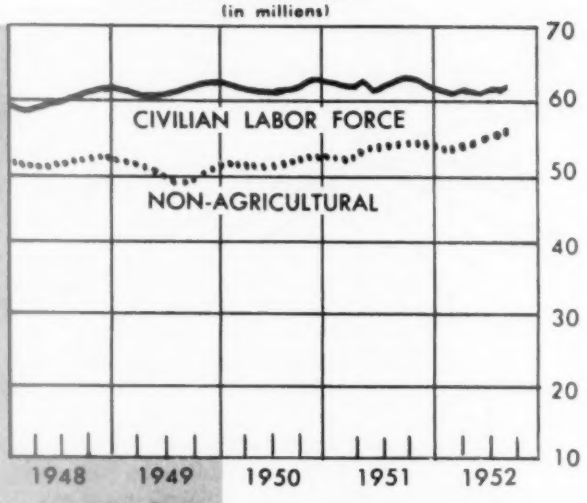
If we can help Western Europe get what it needs, at the right terms, we can follow a policy of stringent curtailment of East-West trade. If not, then United States interference in that trade must be limited to relatively few items of direct security importance. Western Europe too, we must remember, is getting certain scarce and strategically important raw materials from the East.





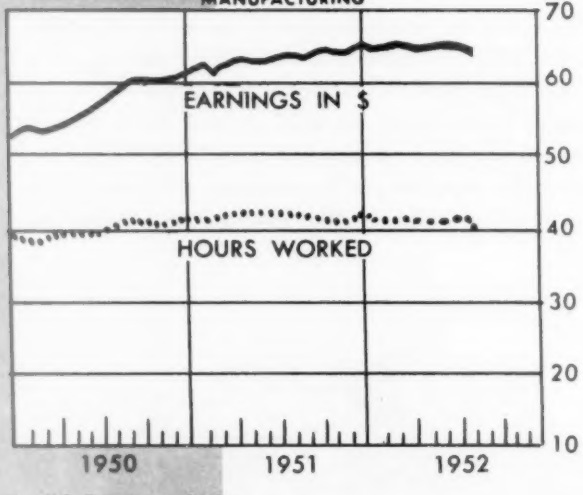
Now is the time to start a detailed and penetrating study of the real significance of *imports* from behind the Iron Curtain to the economic situation of the free countries of Western Europe. Now is the time to start a detailed examination of the possibilities and methods of developing alternative trade channels. Now is the time to start working toward a prosperous growth of international trade under conditions of freedom and private enterprise. Until such studies are completed, United States will not develop a truly rational policy toward East-West trade.

EMPLOYMENT
(in millions)



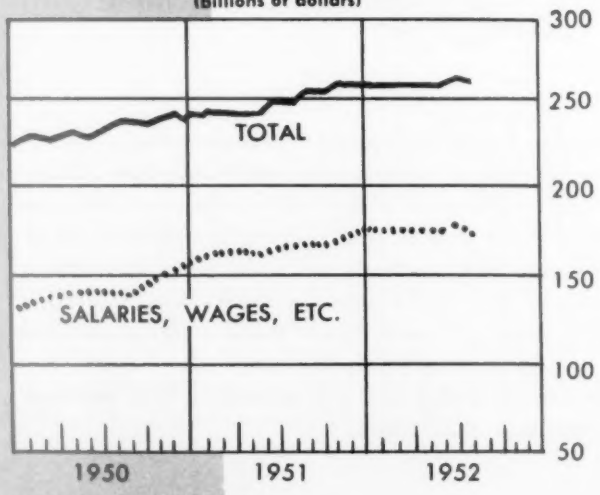
Source: Bureau of the Census

AVERAGE WEEKLY EARNINGS AND HOURS
MANUFACTURING



Source: U.S. Department of Labor

PERSONAL INCOME
(billions of dollars)



Source: U.S. Department of Commerce

Mr. Average Citizen, if he feels like singing at all these days, might well try a paraphrase on an old tune and give out with, "Is I Is, Or Is I Ain't." From the press, the radio, and political platform he has been told on one hand "you've never had it so good" and on the other that he is in a most precarious economic position.

While he struggles to keep his head above water, the battle over his condition gets hotter—and the quarrel is not necessarily a matter of governmental vs. business or party vs. party interpretation. Right now two Federal departments are loudly disputing over the financial status of the "average city family." Last month, Maurice J. Tobin, Secretary of Labor, issued a statement saying the average urban family overspent its 1950 income by $400. The statement was based on figures developed by the Bureau of Labor Statistics, a highly regarded group, whose research on a number of subjects is respected and used in various phases of industry.

The family hardly had time to say that was no news to them, when the Budget Bureau up and said the figures were all wrong, and that the average urban family saved more than $200 during 1950. In its report to the Congressional Joint Committee on the Economic Report, the Budget Bureau said the B.L.S. report on "dissavings" of $400 was caused by a misunderstanding of statistical data, and threw some of their own into the argument.

Personal savings in 1950 totaled about $11,000,000,000 it said. Since we had 48,200,000 families, including one-person families, this means that in 1950 savings per family averaged more than $200. These savings, according to the bureau, took the form of life insurance reserves, purchases of homes, savings accounts, etc. In addition, substantial purchases of durable goods were made during the year.

"The B.L.S. figure rests on a misunderstanding of data" said Stuart A. Rice, Assistant Director of the Budget for Statistical Standards. "This survey concluded that $4,300 in money income for the average urban family was against an outlay of $4,700, indicating a $400 loss of ground at that recent year, at least. The difference between the two figures has unfortunately been taken as a measure of family saving. It is not."

This type of argument—over interpretation of statistics—is one that probably will never be settled. But a realistic note on the subject was sounded recently by Herbert J. Miller, executive Director of the Tax Foundation. Declaring that Government statistics do not tell the whole story on the well-being of the average person, he declared that "better-offness can only be made by individuals themselves after a personal appraisal of all the factors which account for their economic condition."

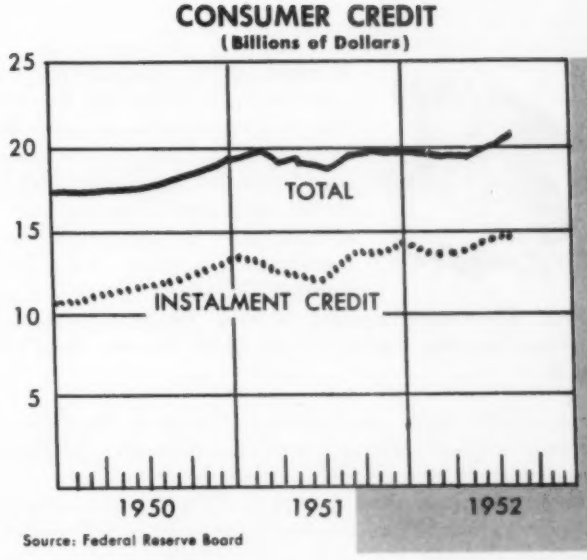
Consider these findings of the Tax Foundation, he said:

Although per capita disposable personal income in 1939 dollars rose from $536 in 1939 to $760 in 1951, all of the increase occurred between 1939 and 1944 and, since the 1944 total was $772, there was an actual decrease of some 2% from 1944 to 1951.

While the total individual net worth in 1939 dollars was 9.2% greater in 1951 than in 1939, it was 7.4% less per capita, 12.5% less per family, and 24.7% less per worker.

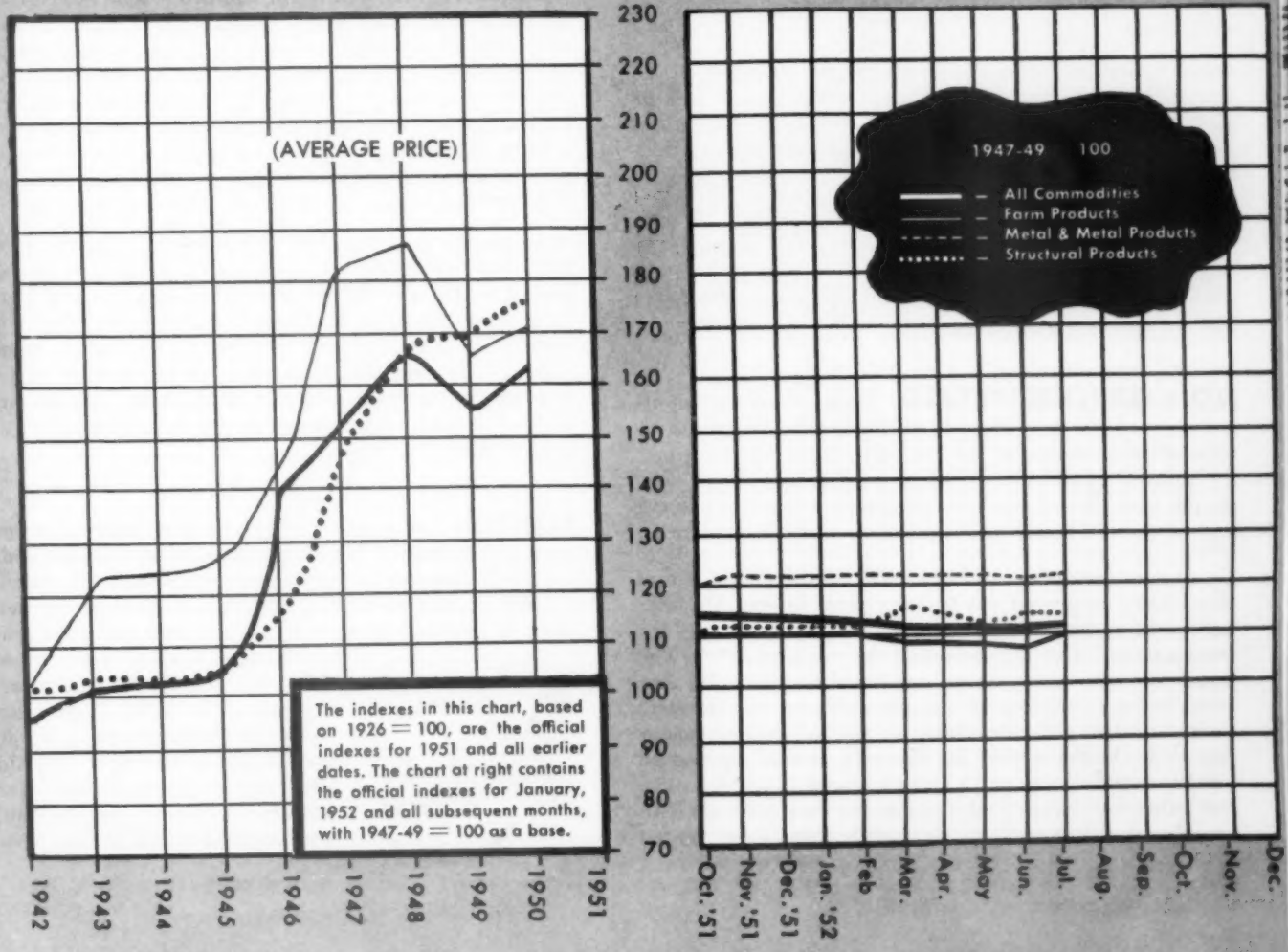
Private debt showed a much larger percentage increase in 1951 over 1939 than did total private assets. Individuals were 54% further in debt in 1951 than in 1939, "even when debt is expressed in dollars of constant purchasing power."

While there was a per capita increase in national wealth, excluding military assets, of about 9% in 1951 over 1939, there was a decline of 4% in 1951, compared with 1929.



Source: Federal Reserve Board

THE PRICE PICTURE



The indexes in this chart, based on 1926 = 100, are the official indexes for 1951 and all earlier dates. The chart at right contains the official indexes for January, 1952 and all subsequent months, with 1947-49 = 100 as a base.

MATERIALS AND MARKETS



STEEL: With the dislocation caused by the strike just about all over, steel production was grinding away at a good rate, trying to meet heavy demand. "A period of stress" for all steel users is the way N.P.A. officials described the coming three months at a meeting of the Drop Forging Industry Advisory Committee. That stress seemed to have different forms and different degrees, depending on which industry was feeling it.

Some groups were complaining to N.P.A. of the difficulty of complying with the recent 30-day inventory restriction imposed on steel users. The aim of the regulation, which reduced permitted steel inventory from 45 days, was not criticized, since it was designed to prevent hoarding, help equitable distribution, and get steel into immediate production. Some companies need a heavier inventory than that to operate. Others happen to have larger inventories and are reluctant to cut them down. One group of manufacturers pointed out that they have no control over shipping dates made by mills, and sometimes a shipment will push them up over the authorized inventory. N.P.A. took some recognition of the difficulty and urged that manufacturers individually report inventory excesses and ask for exceptions.

Other industries are in a bad way for any inventory at all. Barge builders, for instance, have reported that lack of steel has seriously cut production, with some companies not having put any new barges on the ways for more than two months.

Carbon bar stock and tubular goods are still in very strong demand, and Government officials report that military requirements for bars are likely to increase for at least nine months before starting to level off. Plates and sheets also continue in good demand.

NON-FERROUS METALS: Signs of easing in all quarters of the non-ferrous metals market continue to occupy the attention of buyers and sellers. Even copper, the tightest of the most heavily used metals, is in good supply and there have been predictions that the present high demand is bound to drop in the not too distant future.

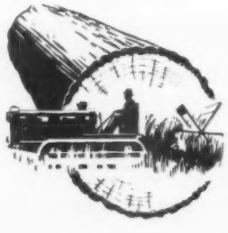
Zinc prices danced around again during the month and at this writing appeared not to have come to rest. On September 12 an important producer raised the price to 14½ cents a pound, East St. Louis, and the rest went along. The boost was believed to have been based on the belief that zinc buying would step up considerably now that the steel strike was over and galvanizing operations were no longer crippled. On September 18, however, a leading custom smelter cut the price to 14 cents a pound, East St. Louis, but other producers and custom smelters had not followed suit at this writing. Meanwhile there were reports that the Government was planning to re-enter the zinc and lead markets to purchase for the stockpile. This, of course, could put upward pressure on prices, but otherwise the supply position in zinc was excellent. The American Zinc Institute, protesting against substitution programs urged under the guise of conservation, pointed out that: zinc is no longer classified a scarce material; slab zinc production in the first seven months of 1952 exceeded 1951 production in the same period by 20,000 tons; stocks of slab zinc at smelters on July 31 were 97,000 tons as compared with 22,000 tons on January 1; world zinc mine reserves are more than twice as large as in 1931.

U.S. Primary aluminum production reached 156,735,591 pounds during the month of July. This topped the June output by nearly two million pounds and the July, 1951, production by 11,000,000 pounds, or about 8%. There has, however, been some talk that power shortages in the Northwest and the lowering of exports of the metal by Canada to the United States would tighten supplies here considerably during the fourth quarter. It is believed that the Government will defer its plans to increase the stockpile of aluminum this year so as not to put too heavy a drain on the market.

FUELS: At this writing, it appeared that at least half of the nation's coal mines would be shut down within a few days by a strike called by John L. Lewis. Another strike, affecting the Southern Coal Producers Association, producers of about 110,000,000 tons a year, is expected on October 1. Trade circles saw no great impact from these strikes, at least for the immediate future, since stocks above ground are at record levels. Steel companies, for instance, are reported to have an average of 60 days' supply.

A somewhat brighter—but still cautious—outlook on the light fuel oil supply situation for the coming winter was voiced by the director of domestic refining for the Petroleum Administration for Defense. He expressed "qualified optimism" over supply prospects. Assuming normal weather, he said that high rates of production and increased inventory movement now promise sufficient heating oil to meet requirements on the East Coast this coming winter.

LUMBER: Latest report of the Lumber Survey Committee to the Secretary of Commerce observes that the lumber market continued to show a lack of strength during the second quarter of 1952. The last half of the year, however, is expected to see a pick-up in demand. Production in the first half of the year was 6.7% less than in the corresponding period in 1951. High stumpage prices and increasing production costs are having a curtailing effect on production, particularly in the South, where many small mills are reported to be closing down.



A two-edged blade—learn to use it well

PUBLIC RELATIONS in the Purchasing Department

By Solomon Balsam



As Publicity Director for Contempo Advertising Agency, New York City, Mr. Balsam handles the public relations programs for several leading industrial corporations, including the preparation of some of the better known radio features that have brought good public relations for their sponsors into your living room, and is recognized as an authority in this field. Among his varied professional assignments was a term as public relations counsel to the late President Franklin D. Roosevelt. He brings to this work the same keen observation and analysis that won for him a Pulitizer award as foreign correspondent for the Philadelphia Record a decade ago. He has held lectureships at McGill University and Columbia, and a fellowship at the Sorbonne, in Paris.

WHAT all business needs today is a sound concept of public relations. That applies to the purchasing department, too. Some firms unknowingly lose thousands of dollars if their purchasing departments fail to comprehend the true significance of cultivating the good will of every salesman who calls on them. Little do they realize that such friendships could save the firm many extra hours of research and unwarranted expenses. They seem to forget that a buying transaction is a two-way affair, in which both buyers and sellers serve each other to their mutual advantage.

Before this day is over, you will probably answer telephone calls, write letters, attend meetings, or confer with salesmen. Whether you realize it or not, you have "public relations". And how important they are! If they are *not* good, if the salesmen and others with whom you do business don't think, as a result of those contacts, that you are an asset to the firm and industry, beware!

Gaining the good will of the salesmen you see from day to day should be just as much of an objective as the selling of your firm's merchandise. No matter how large or small the company you work for may be, you must meet your public properly.

Following are some concrete suggestions on how you can gain the friendship and good will of the salesman and of your associates. These are by no means a complete compilation. But if you bear these vital points in mind, you will not only earn the grateful blessings of the salesmen with whom you do business, but you'll also save considerable time and money for your company.

1. Make it your business to become thoroughly familiar with your firm's products and manufacturing processes. This is the foundation for more intelligent discussion of your requirements and the salesman's products. It may lead to better management of purchasing procedures, and help you to advance on your own job.

2. It is just good business to buy only first rate materials from the

best available sources, regardless of your own interests and friendships. In many conversations with successful purchasing agents, I have discovered that their last consideration given to a purchase is the price. Quality, reliability of source, and delivery are the vital considerations. As for price, the judicious buyer will realize that the vendor of quality who is also reliable will in the end prove price-wise too. Always have your company's interests at heart; then the supplier, too, will have this in mind as the occasion arises.

Courtesy Dividends

Purchasing agents play a vital role in their firm's day-to-day progress in that they assist the designers and experimental staff in ascertaining valuable data and samples for the development of new products and general production policies. Often this work entails the investment of many arduous hours of a buyer's time to secure "nuisance" samples and information. Here's one place where the salesman, if treated properly, can prove very helpful. Even though it may cost him considerable time and expense to secure a two-foot length of special tubing, he will extend himself to give such service if the buyer has always treated him graciously and made him feel that he is an essential adjunct to his organization.

3. It is scarcely necessary to stress the importance of absolute honesty. The slightest suggestion that the buyer is open to favors or enticement destroys the respect without which there can be no genuine good will.

4. Remember that none of us is too old or too experienced to learn. You may know a lot, but don't make the mistake of thinking that you know it all. Accept legitimate suggestions, whether from salesmen, or from your colleagues, graciously and in the same cooperative spirit in which they are offered.

5. Make certain always to greet salesmen courteously, and as promptly as possible. Remember that you would want the same decent treatment if you were in the caller's place. If he enjoys doing business with you, he will do his utmost to show you "not-in-the-book" ways in which his product or services can be helpful. He will make a stronger effort to adapt his product to *your* needs, to think not only in terms of what he sells but of what you require. Every salesman knows the potentialities of his own products better than you do. His knowledge can help you to do a better job, or to avoid costly errors of judgment.

Ally or Foe?

Recently, I visited the offices of a leading electrical manufacturer. A sign in the reception room, with the president's signature, read:

> *"We must never forget that any salesman who visits us or seeks our good offices, offers us the privilege of creating good will for ourselves. Let us, therefore, not rebuff the man who affords us this opportunity."*

That company policy requires that when a purchasing agent accepts his position, he is thoroughly imbued with the fact that he must *always* extend himself for salesmen who come on a legitimate mission. This firm realizes that inevitably such a cordial attitude toward salesmen results in immeasurable good will and eventually is reflected in added sales.

In direct contrast to this attitude, I had occasion to talk with a salesman who called on a leading liquor firm. A rule of the company prevented his entrance into the plant without a pass from the purchasing agent. That's not an uncommon rule, and the reasons for it are understandable. But in this case, the buyer refused such a pass without even seeing the salesman or inquiring about his purpose in making the request. Ever since, the salesman has been passing his grievance on to others. The unfortunate part of this occurrence is that the buyer's organization spends millions of dollars in advertising and public relations work to sell their product to salesmen as well as to others.

A recent survey of salesmen emphasized strongly the importance of courteous and thoughtful treatment by their prospects. Some of them will drive miles out of their way to buy the products of the companies who have treated them nicely. Similarly, they will harbor resentment and spread ill feeling for an organization that has failed to extend them civil courtesy.

Salesmen's Gripes

A common topic of conversation among salesmen is the physical inconveniences to which they are put, the comforts that are completely overlooked by many companies. No space is reserved for their cars. Or little or no attempt is made to exhibit the company's products in a conspicuous place where salesmen can see them. Such a presentation is more than a selling factor; it may enable the buyer and salesmen to establish points of common interest, and to reach a meeting of the minds more quickly and economically.

The "welcome folders" given to visiting salesmen in the reception rooms of many companies, with pertinent information and an official message of greeting, are an ideal manifestation of good public relations. But of course they accomplish little unless the words are backed up by a sincere attitude of good will. Lightolier, Inc., in Jersey City, goes farther, working for the cultivation of good will by giving all their employees, including the purchasing department, periodic lectures and explicit instructions to extend every human courtesy to each salesman entering their premises. The salesman is granted an interview and allotted ample time to present his line. If his product is not required at the moment, he is invited to leave his card and to call again. Even though he does not make a purchase the buyer stands to gain in the long run for the time and little courtesies extended. You never can tell when the cooperation of a friendly salesman may be urgently needed, and how much time, expense, and anxiety can be saved by having such contacts and good will.

Companies that have fostered or condoned harsh policies on the part of their buyers, or take undue advantage of conditions to drive excessively hard bargains when they happen to be in the driver's seat, create a situation in which salesmen may hate to make that particular call. When the shortages and emergencies of wartime came, those old tough policies took their toll, and the competitors whose buyers had been decent to sellers collected the gravy.

Be Specific and Decisive

One of the important factors in our high national cost of distribution arises from indecision, which is expensive to buyer and seller alike. The value of goods and services starts only when they are placed into actual use, not before. Unnecessary time utilized in negotiating involves a loss for both buyer and salesman.

Much can be done to alleviate the poor business practices that are destroying so much of the good will which firms spend countless time,

effort, and money to foster. If each executive in authority in manufacturing plants will give just a little thought and planning to his own system of operation, and follow it through with appropriate action, salesmen will be helped to function to the best advantage of all concerned, resulting in lower buying overhead and manufacturing costs.

Everyone who has occasion to interview salesmen should be trained to get just as much information as possible from the interview. Some of the best "buys" are made after the salesmen have covered their entire bag of tricks, upon the buyer's insistence upon getting certain definite information and urged the salesmen to track it down among their half-forgotten literature. Always encourage decisive action. It's a wonderful time saver for everyone concerned.

The Salesman's Part

Salesmen, too, can do much to help this situation by conforming to established buying policy, and observing the rules of courtesy and common sense.

If definite hours of the day are specified for seeing salesmen, call within the allotted time. Give the buyer a chance to take care of his mail and internal buying procedures in an orderly manner. Most plants today operate on a five-day week basis. Therefore, unless the buyer explicitly requests your presence at his office on Saturdays, or outside of regular calling hours, you will accomplish nothing by calling or making a merchandise delivery at that time, and the fault is your own.

Avoid making calls for no better purpose than to say, "Hello." Such calls are needless time wasters to both sides, and should be eliminated. If the buyer is out at the time of your call, leave a message; it may save your time and that of your prospect. Make an appointment in advance if your call is going to require more than the normal amount of time.

Make certain that purchasing agents are kept informed of your company's latest product changes and improvements. It will help you both, and will avoid later delays and misunderstandings. And be sure to notify the purchasing agent, well in advance, if you can't meet a specified delivery date or fulfill some other promise. Failure to consider this vital factor will mean loss of confidence and good will, and possible loss of a valued customer upon whom you have lavished time and money to cultivate. Building and maintaining good public relations works both ways.

Within the Company

Intra-company affairs respond to good public relations as much as do the outside contacts. Foremen and superintendents may depend on purchasing agents to obtain the necessary materials and supplies. But the buyers, in turn, must utilize their foresight, judgment, and integrity to carry on an effective program of supplying the needs of their departments. Mutual courtesy, cooperation, and responsiveness are the requisites for maintaining efficient production.

Quality control, methods and production control executives can also help the purchasing man to do a better job. If their opinions and decisions sometimes run counter to your own, and seem to nullify some of the work you do, sit down with them and look at both sides of the question. Usually you will find that their decisions are based on judgment and reasons based on their years of specialized experience. Although their jobs may be limited to perhaps one specific phase of your purchasing endeavor, yet that consideration is a 40-hour a week measure of concentrated effort and experience.

Be sure that your associates are fully informed of purchasing regulations, such as those regarding properly endorsed requisitions and authorized buying schedules. Then abide strictly by those regulations.

Whether you are the president of the company, its chief purchasing agent, or the receptionist, it is important that you do your part in making your firm the kind that is pleasant to sell to, buy from, or work for. Such a path is paved with little things—a friendly smile from the receptionist—a courteous telephone conversation—intelligent, helpful secretaries who do not think that their job is to keep everybody away from the boss. They will realize that purchasing is a two-way job in which buyer and seller can serve each other profitably.

These and many other things are a part of the huge public relations job that a company can maintain. There is no question but that the company which understands and knows how to utilize these resources intelligently will be years ahead of its competitors who fail to comprehend their true significance.



"You seem to misinterpret the duties of the follow-up department."

Standardization in the Grinding Wheel Industry

. . . . for easier buying and stocking

. . . . for precise industrial service

By H. E. George

Illustrations by courtesy of The Grinding Wheel Institute



Courtesy Carrier Corp., Syracuse, N.Y.

Standardization of grinding wheel composition, and of shape and size, helps to simplify inventories and handling in this well-organized stock room. Exact identification of any wheel is quick and easy because each is clearly marked in terms of the standard marking system for composition. Resting straight wheels on edge, with larger sizes in the bottom rack, conforms fully with Grinding Wheel Institute recommendations for proper handling and storing of abrasive wheels.

LIKE many other products we might name, it was a lot easier to buy a grinding wheel in the "good old days", when all you had to tell the manufacturer was the diameter of wheel you needed, and little else.

All wheels were pretty much the same then. It made little difference to the user that there seldom was any uniformity of grinding characteristics from wheel to wheel—even within the same factory shipment. Precision machine grinding at high speeds was totally unknown. Use of grinding wheels was restricted almost exclusively to the tool rooms of factories and shops where one or two highly skilled craftsmen took care of all the grinding, sharpening, and repointing needs in the whole establishment. Only a relatively few different types of grinding wheels completely satisfied every demand in those times.

The beginning of the big upsurge in the number of grinding wheel types came with the development of the electric motor, which brought the grinding wheel out of the restricted domain of the tool room and made of it a valuable and versatile production tool. The growing snowball was swept along still faster by the industrial revolution which spread across the country around the turn of the century. Onrushing technological progress that gave birth to many new grinding techniques and opened the way to many new grinding applications left behind it a trail of literally *hun-*

dreds of thousands of new types and sizes of grinding wheels.

Chaos continued to grow, and more and more new wheels were made—often differing from an existing wheel by only a small fraction of dimension, yet constituting an additional item in the ever growing list. Finally, the situation became so complicated, and so acute, that the grinding wheel industry—traditionally composed of rugged individualists—was forced to get together and devise standards in the hope of cutting down the total number of wheel types.

After several years' hard work, standards for grinding wheel types, shapes and sizes were announced in 1926. This was a tremendous achievement, cutting down the total number of grinding wheels from the fantastic and growing figure of 750,000 to a relatively stable total of 250,000 different types.

Although a quarter million types may seem like far too many to be dignified by the term "standardization", it's really only a small number compared to the several millions of possible wheel types. Further reduction would have meant cutting out wheels whose grinding jobs could not be done properly by any other type. This fact, incidentally, shows the great degree to which grinding wheel operations have become indispensable to modern production methods.

Continued advances in industry brought new uses for grinding wheels in the years that followed, until today the total figure has risen to something more than 300,000 varieties. Old wheels are constantly being dropped from the listings, and new ones added. Nevertheless, one of the most important aims of standardization has been achieved: the prevention of another chaotic runaway in the number of types of wheels demanded.

User and Maker Benefit

The reduction brought about by standardization benefitted the grinding wheel buyer and user to a marked degree. These users, although they themselves were in most cases the source of new designs, had found their ordering tasks becoming increasingly difficult as the number of wheel types doubled and redoubled during the pre-standardization period. It was not merely a question of more complicated selection. Wheel specifications had to be spelled out in full engineering detail, and the chances for error—both in writing the order and in interpretation of it at the grinding wheel factory—were considerable.

Standardization killed this octopus at a single stroke with a new marking system which completely describes the key dimensions and composition of a grinding wheel in simple fashion. Paper work was thus simplified, and the entire process of ordering, manufacture, and delivery was notably accelerated.

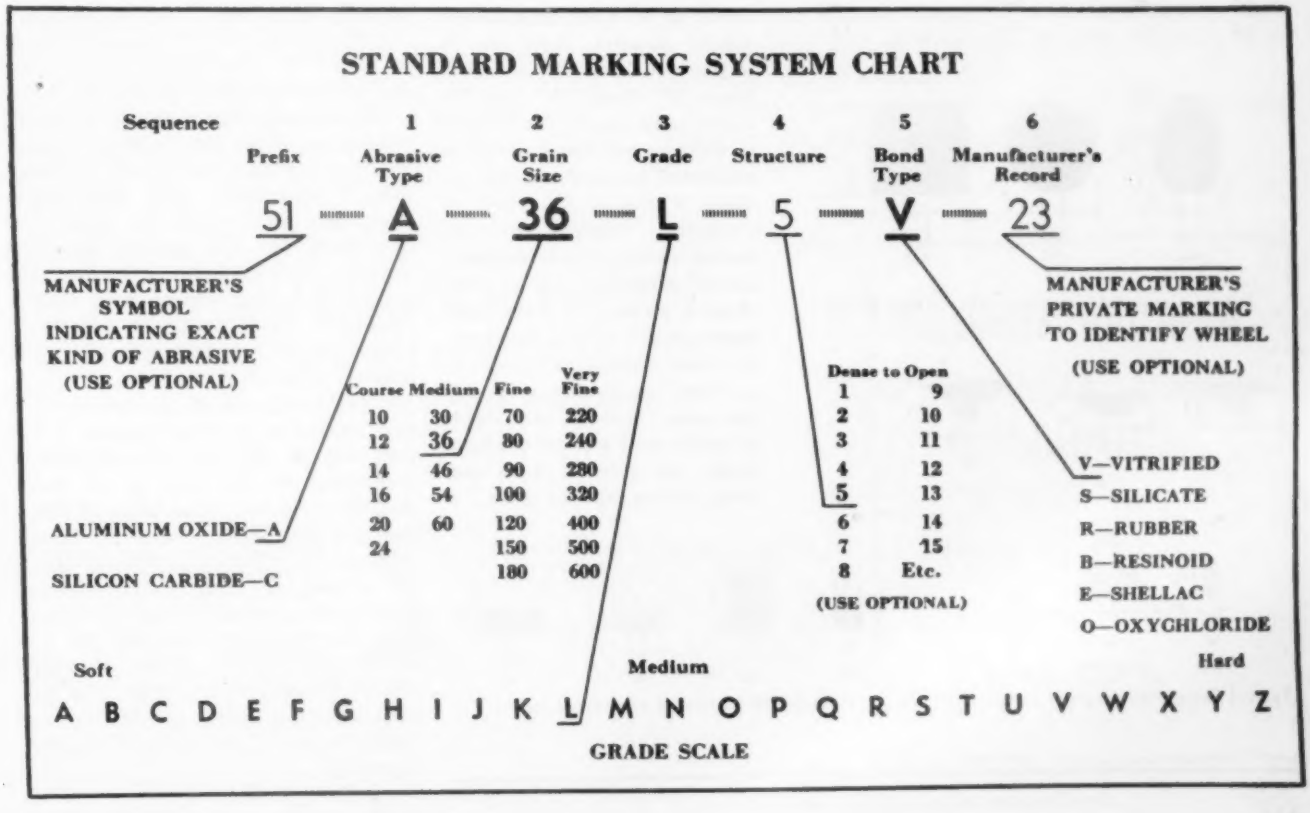
For the wheel manufacturer, it meant a welcome simplification of his production problems. He was better able to manufacture for stock, in standard types and in more economical production quantities. Finished stock awaiting shipment was easier to handle, and less warehouse space was needed. He could devote more time to making better quality wheels in a relatively few types, including profitable specialization in a limited number of wheel types.

The uniform marking system adopted by the grinding wheel industry, shown herewith in chart form, uses a series of six lettters and digits. These are adequate to describe or identify any grinding wheel, regardless of the manufacturer.

(1) First position at the left shows the type abrasive used, such as aluminum oxide (A) or silicon carbide (C). Occasionally a prefix letter or number is used before this position to indicate a modification of the basic abrasive type.

(2) Second position is a number indicating size of the abrasive grain used in making the wheel. This number corresponds to the number of meshes per linear inch in the smallest screen which will sift out this size grain.

(3) Third position is a letter (A to Z, soft to hard) which specifies the grade or degree of tenacity with



which the bonding material holds the grain particles together in the wheel. The letter in this position tells the "hardness" of the wheel, a quality which should not be confused with the hardness of the abrasive grain itself. (No provision is made in the system for indicating grain hardness, since the type of abrasive, indicated in the first position, conveys this data.)

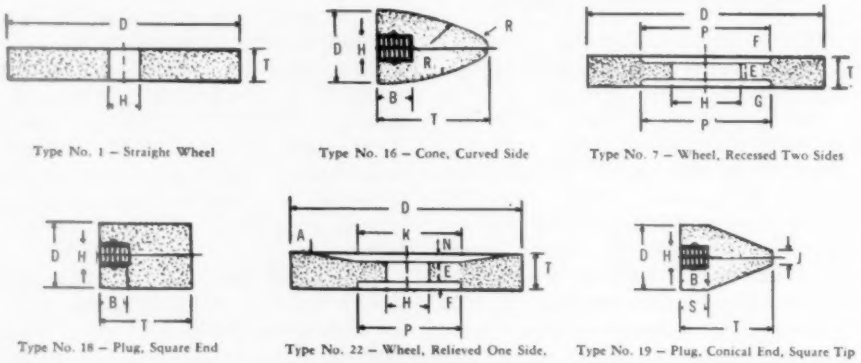
(4) Fourth position is a number telling the structure or grain spacing (0 to 16, dense to open).

(5) Fifth position employs a letter to designate the bond type. V means vitrified; S, silicate; R, rubber; B, resinoid; E, shellac; and O, oxychloride.

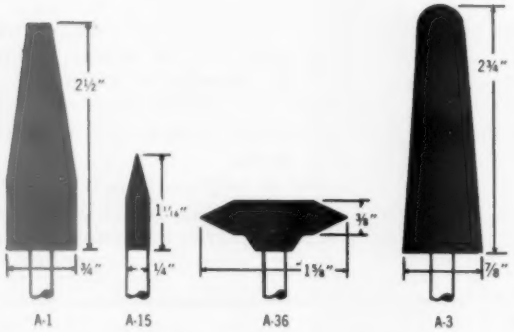
(6) Sixth and final position signifies the maker's detail of manufacturing, and its use is optional. It may be used by him for any purpose, and usually refers to a modification of the bond. It also serves to identify the manufacturer.

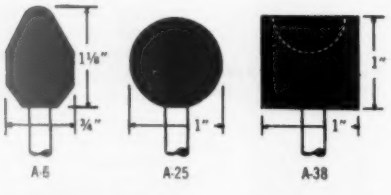
By this means it is possible to mark a grinding wheel so that its composition can be easily identified at any time, or—given any wheel at random—to instantly recognize the elements contained and the grinding characteristics which may be expected. The system not only provides an accurate description of a wheel, but simplifies ordering as previously mentioned, and makes stocking and inventory far easier for both user and maker.

A word of caution is in order. Useful and valuable as it is, this standardization system applies only to *marking*; it does not necessarily mean that abrasive wheels of different manufacturers which are similarly marked will always produce identical grinding results.



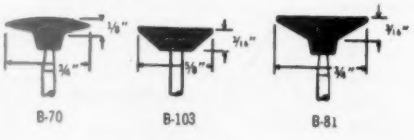
Typical standard grinding wheels.

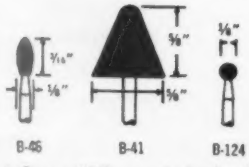




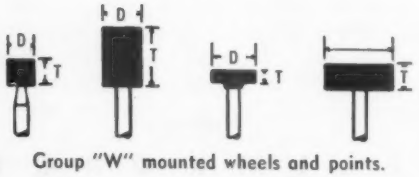
Typical Group "A" mounted wheels and points.

Grinding wheels mounted permanently on spindles are known as mounted wheels, or mounted points. Standard sizes do not exceed 2" diameter, and in the other direction the diameters run down to as low as 3/32". Shown here are the three groups of mounted wheels and points. Group "A" differs from Group "B" in that its wheels, on the whole, have a larger spindle diameter. There are 26 members of Group "A", and 54 in Group "B". Group "W" comprises strictly plain shapes, but because of diameter and length variations established by standardization includes a total of 106 wheels, a considerable reduction from the number existing before standardization. When ordering mounted wheels or points, refer to the wheel manufacturer's catalog for standare shape numbers and sizes. If not listed, furnish sketch with full dimensions. Diameter and length of spindle must also be specified; finally, the complete grain and grain marking must be given.





Typical Group "B" mounted wheels and points.



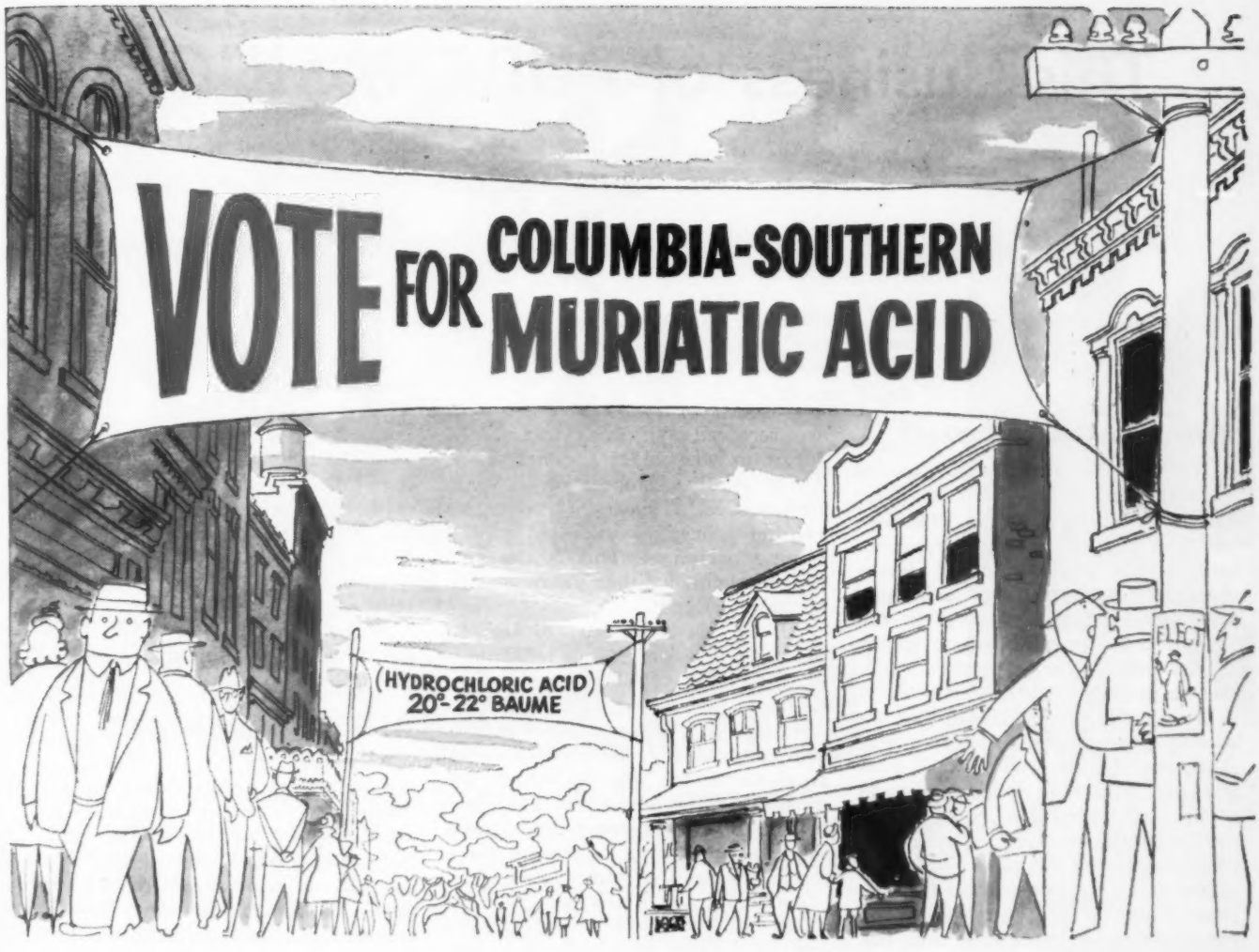
Group "W" mounted wheels and points.

Exit: the "Special"

The current standardization efforts of The Grinding Wheel Institute, representing most of the major wheel manufacturers, are directed toward obtaining still greater economies and simplifications along these lines of approach. Gradually, users are coming to realize that they can benefit in many ways by finding a standard grinding wheel to do the job now being done by the "specials" they have been ordering. In almost every case, such a standard wheel exists, and the manufacturer is eager to cooperate in determining which standard wheel to use.

There have been many instances where an alert purchasing department, working closely with its company's engineers and production men, has uncovered the fact that the need for the special grinding wheels it has been ordering for years no longer exists, and that a standard wheel would in fact be a better choice for the application, for several reasons.

Consultation with the production and engineering departments is the first step in the step toward standardization on the part of the user. A good time for these talks is when the grinding wheel manufacturer's sales representative is in the office. He is well qualified to help analyze these problems and to supply whatever information is needed for you to decide exactly which standard wheel (possibly one that you are now ordering, anyway) is the best replacement for your obsolete "specials".



When you elect Columbia-Southern as your supplier of Muriatic Acid, you get more than a high quality product.

You get the benefit of Columbia-Southern's experience of over half a century as a leader in the production of essential industrial chemicals.

You get the assurance of dealing with a company that has an enviable reputation for quality chemicals, excellent service, and sound business policies.

You get the appreciation and eagerness of the Columbia-Southern organization. Our sales and service staffs will always go out of their way to help you with your Muriatic Acid problems.

Columbia-Southern means prompt, efficient, courteous attention. We solicit the opportunity to serve you.

COLUMBIA-SOUTHERN
CHEMICAL CORPORATION
SUBSIDIARY OF PITTSBURGH PLATE GLASS COMPANY

EXECUTIVE OFFICES: Fifth Avenue at Bellefield, Pittsburgh 13, Pennsylvania
DISTRICT OFFICES: Boston, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Houston, Minneapolis, New Orleans, New York, Philadelphia. Pittsburgh, St. Louis, San Francisco

Soda Ash • Liquid Chlorine • Sodium Bicarbonate • Calcium Chloride • Modified Sodas • Pittchlor • Caustic Potash • Chlorinated Benzenes • Rubber Pigments (Hi-Sil, Silene EF, Calcene TM, Calcene NC) • Muriatic Acid • Perchlorethylene

COLUMBIA-SOUTHERN MURIATIC ACID is shipped in 8,000 and 10,000 gallon rubber-lined tank cars.

This Business of PURCHASING

. . . casual comment from editor to readers about your business and our business

After Value Analysis, What? . . .

We find a considerable amount of satisfaction, and also a cause for pride, in the part that PURCHASING has played in the acceptance and wider application of Value Analysis as a purchasing technique. Our contribution has been in the role of both reporter and promoter of the idea. Our biggest mistake was in getting so enthusiastic about it in the very earliest stages that we started promoting before there was really enough in the way of systematic, concrete development to report. But time has proved that our prognosis was correct, and our enthusiasm well founded.

Our drum-beating started back in 1945, which was just about three years ahead of the times, and the drum gave forth a hollow sound. At an "advanced seminar" educational meeting that year, where the topic was aired, some thirty able purchasing department heads were practically unanimous in declaring that Value Analysis, insofar as it is concerned with design and manufacturing methods, was beyond the scope of their purchasing authority, and that they would be considered presumptuous in suggesting a program of this sort in their respective companies even though the plan might have some merit.

The first full-scale presentation of Value Analysis as a scientific and integrated aspect of purchasing appeared in our Ford Issue of July 1948. One result of that presentation was the discovery that a number of other progressive purchasing departments had been working along the same lines independently. In succeeding issues we have been able to present a half dozen equally impressive reports. By now the idea is pretty generally accepted, and the science has been formalized to the point where it is capable of adoption or adaptation in departments of virtually any size, with beneficial effect. Only the other day we received an article and set of forms in which, for the first time, Value Analysis report forms were included as a matter of course, a routine procedure expected of the buying personnel. This is the best possible evidence that Value Analysis has "arrived".

All of this is by way of leading up to a conversation that took place at the recent N.A.P.A. convention, following a Value Analysis discussion. One of the Association leaders said emphatically, "This is IT. Value Analysis is the peg on which we must hang our hat, to establish our professional competence and prove that we are giving maximum purchasing service to our companies."

Another man in the group—who, incidentally, has an outstanding record in Value Analysis—did not agree. "Let's not hang up our hats on any peg," he said. "Let's keep them on and keep going. Take inventories, for example."

He cited an instance of visiting one of his company's plants where an aluminum foundry was operated. He noted what seemed to him an excessive stockpile of the metal. When he questioned it, the plant manager assured him that a 30-day supply was essential to maintain uninterrupted operations. "What if I made an iron-clad contract to deliver a week's supply at your receiving platform every Monday morning?" The plant manager opined that, if he could count on that schedule, he could get along safely with a 10-day inventory. Within the week, such a contract was in effect, and stock of this major item was cut to one-third of the former amount.

The buyer pointed out that this had been accomplished without any encroachment on other authority but merely by the application of good purchasing technique to make inventory control more economical and equally effective. Similar opportunities exist, he declared, in packaging instructions and materials handling techniques on purchased materials. He cited standardization as another field, accepted in principle, but in which the practical purchasing applications have barely scratched the surface of potential savings.

Truly, purchasing is a job which could well be described as having "horizons unlimited".

What Advertising Means . . .

According to the authoritative tabulations of *Printers' Ink,* among the several thousand magazines directed to the American reading public, PURCHASING ranks in the "top 25" in the number of advertising pages published annually—No. 22, to be exact. That's a pretty exalted position, considering the magnitude of the field and the fact that this is in competition with the mass-circulation general weeklies such as *Satevepost, Life, Time,* among others.

We believe that this should be a source of gratification to our readers as well as to ourselves. For what it means is that these advertisers believe in the purchasing function, your job. They don't believe in back-door selling, but bring their wares and their propositions frankly and directly to the purchasing agent as the man of decision. The advertising volume is encouraging and convincing evidence of the growing acceptance of this selling policy among industrial suppliers. It was not always thus, as every purchasing man well knows.

Remember that the common denominator of all advertising published in this magazine is respect for the purchasing department. In sum total, it is an impressive endorsement of your position in industry. In the individual advertising messages, it is the direct line of contact and communication for establishing mutually satisfactory and beneficial lines of supply.

STOP RUST! with RUST-OLEUM

Protects Tanks, Pipes, Girders, Metal Sash, Fences, Roofs and Buildings, Rail and Marine Facilities

BEAUTIFY AS YOU PROTECT—ALL COLORS, ALUMINUM AND WHITE!

RUST-OLEUM may be applied directly over *rusted surfaces without removing all the rust!* Just remove rust scale and loose particles with wire brush and sharp scrapers . . . then apply by brush, dip, or spray. Costly sandblasting and chemical pre-cleaning are not usually required. Easy as that to cut your maintenance costs. Specify **RUST-OLEUM** to your painting contractor or architect for *every rustable* metal surface! Prompt delivery from Industrial Distributor stocks in principal cities.

RUST-OLEUM CORPORATION
2435 Oakton Street • Evanston, Illinois



FREE SURVEY: A **RUST-OLEUM** specialist will gladly survey your rust problems. He'll make specific tests and recommendations. No cost or obligation. See Sweets for complete catalog and nearest **RUST-OLEUM** distributor, or write for literature on your company letterhead.

Stopping Rust with **RUST-OLEUM** 769 D. P. Red Primer



CLIP THIS TO YOUR LETTERHEAD
MAIL TO: RUST-OLEUM CORPORATION
2435 Oakton Street • Evanston, Illinois

- ☐ Have a Qualified Representative Call
- ☐ Full Details on Free Survey
- ☐ Complete Literature
- ☐ Nearest RUST-OLEUM Source

Look for this label — be sure it's genuine RUST-OLEUM

Some problems that are troubling buyers

Legal Questions Asked and Answered

By Leo T. Parker

During the summer of 1952, Mr. Parker traveled extensively in several states of the West and Northwest, interviewing purchasing agents to determine at first hand what legal problems are currently of greatest importance to them. In this article, he gives the answers to several of these questions which appear to be foremost in the minds of representative purchasing men, and are of general interest to the field.—Ed.

Validity of Bonus Contracts

QUERY: Is an agreement by an employer, to pay a purchasing agent or other employee a bonus at the end of the year, valid and enforceable?

One reader presented this question, of interest to every salaried employee, in this form, based on his personal experience:

"About a year ago I accepted employment with a corporation. At that time the officials promised to pay me a bonus of $1,000 at the end of the year. I was discharged before the end of the year. Can I sue the corporation and recover damages because I was discharged before the end of the year?"

According to a late higher court decision, the answer is NO, if the corporation officials can prove they were justified in discharging the purchasing agent before the termination of his year's service. Otherwise the corporation must pay the bonus, as promised.

For example, in Specker v. Sun Ray Drug Company, 60 Atl. (2d) 400, the testimony showed facts, as follows: One Specker was the manager and purchasing agent of one of the Sun Ray Drug Company's branches, under a financial arrangement by which he received a stated salary, plus a bonus at the end of each year. One year his bonus amounted to $900.

The following year the control of the corporation passed into new hands. At a meeting of the employees the new executive of the corporation orally informed them that their continued services were desired and that their salary and bonus plans would be as good, and if possible better than, in the past. This was confirmed by a letter to Specker in which the corporation's vice president stated: "All existing privileges as to vacations, bonuses, etc., will be continued and wherever possible improved."

Specker remained in the corporation's employ until January 15, the following year, when he voluntarily resigned. The corporation refused to pay any bonus, and Specker sued to recover the promised bonus.

In holding the corporation liable for payment of $900 bonus to Specker, the higher court said:

"The letter referred to 'existing privileges', and the existing privileges were ascertainable by determining what they had been in the past, . . . Moreover, the oral promise that bonus payments would be as good as those of previous years definitely fixed a minimum amount. The jury's verdict establishes that appellant's (corporation's) engagement was to pay appellee (Specker) a bonus of at least $900.

Hence, it is well established that under ordinary circumstances, although an employee resigns or is discharged before the termination of a bonus period, his employer must pay the definitely promised bonus.



BONUS AGREEMENTS ARE A VALID PART OF SALARIES BUT INDEFINITE PROMISES ARE NOT ENFORCEABLE

TRY THIS GATE ON GASOLINE

Even on hard-to-hold liquids, you can obtain positive shut-off *plus* unrestricted gate valve flow. O-B gates feature the self-adjusting Flexitite® Disc—a disc with slightly flexible outer edges that nullify minor seat irregularities—form a leaktight closure each time valve is closed. Available at your local distributor. Insist upon O-B gate valves with the unique disc that closes tight—*and stays tight.*

No. 22 Line Gate Valve. ¼ to 3-inch, 150 lbs. W. S. P. 300 lbs. W. O. G. Available with Rising Stem. Ask for No. 23 Line



O-B VALVES

BRONZE GLOBES, ANGLES, GATES AND CHECKS FOR INDUSTRIAL SERVICE

Ohio Brass

MANSFIELD • OHIO

4194-V

On the other hand, other courts have held that an employee is not entitled to receive an "indefinite" bonus.

See Butler v. Kemerer Company, 67A. 332. Here the testimony showed that an employer promised that his profits would be shared with his employees on a "very liberal basis". The higher court held that employees could not recover any bonus, saying:

"There was no standard by which they (the jury) could measure the degree of liberality with which the defendant (employer) should reward the plaintiff."

In Williams v. Butler, 105 N. E. 387, the higher court held that an employer may terminate an employment contract and refuse to pay a purchasing agent who becomes sick and is unable to perform his duties. This court explained that death, sickness and insanity and other causes, due to an act of God, entitles an employer to discharge an employee irrespective of the terms of the contract.

Damages Too High

QUERY: If a purchaser refuses to accept and pay for purchased merchandise, what damages will the court allow the seller? How does a court calculate the amount of such damages? Is it possible for a purchaser to be not liable in damages for breach of a sale contract?



DAMAGES AWARDED FOR BREACH OF CONTRACT CANNOT EXCEED ACTUAL DAMAGES PROVED BY THE EVIDENCE

And again in Rudd Company, 294 Pac. 69, it was shown that an employer agreed to raise the salary of a purchasing agent "from time to time".

The Supreme Court refused to enforce the agreement saying:

"The alleged contract is too indefinite and uncertain to be enforced."

The circumstances which may justify an employer to discharge an employee are illustrated by higher court cases as follows:

In Carson v. McCormick 36 Mo. 462, an employee admitted that he spent some days in operating his own business, and that while in the employment and receiving pay for his services, he attended several games of baseball. The higher court held that these acts justified his discharge.

In Day v. American, 83 N. Y. S. 263, the main act of the employee, which was relied on by the employer to effect a discharge, was that the employee took a vacation and neglected the employer's business although the employment contract did not provide for a vacation. The court held that this act did not justify the employee's discharge.

Recently a higher court clearly answered this question.

For illustration, in Tovrea Equipment Company v. Cobby, 230 Pac. (2d) 512, the testimony showed facts as follows: A purchaser purchased from a manufacturer thirty hay rakes at $448.80 each to be delivered the following spring.

In subsequent litigation, the purchaser contended that during the original negotiations the manufacturer made certain warranties concerning the quality of the rakes. The purchaser also contended that eleven of the rakes were defective when delivered, and he refused to accept delivery of the balance nineteen rakes.

Although the purchaser testified that the manufacturer had verbally guaranteed the rakes, the lower court refused to believe this testimony and held the purchaser liable for $6,000 damages. The purchaser appealed to the higher court and proved these facts: The contract price for the rakes was $448.80 each. The rakes were worth $425.00 each on the open market at the time he refused to accept delivery of the nineteen rakes. Hence the difference between the market value of the rakes and the $448.80 contract price was $23.80 for each rake.

The higher court reversed the lower court's verdict, and said:

"If it be conceded that defendant (purchaser) was guilty of breach of contract the jury should not have found that he was damaged in an amount greater than $23.80 per rake or $452.20 for the nineteen rakes not accepted. In the lower court the jury returned a verdict for $6,000. Such a verdict was grossly in excess of the damages which were established by the evidence."

The court instructed the jury, as follows:

"If you find from the evidence that the defendant (purchaser) wrongfully refused to accept and pay for the rakes, then the plaintiff (manufacturer) would be entitled to recover damages, if there be any, and the measure would be the difference between the contract price $448.80, and the market or current price at the time or times when the rakes ought to have been accepted."

Therefore, in view of this late higher court decision, it is quite apparent that a purchaser may avoid all liability in damages for breaching a sales contract, if he proves that the market value of the merchandise was the same or more than the price specified in the contract.

Of course, the same law is applicable to purchasers who suffered financial losses resulting from a seller's breach of a contract.

For example, in Zoellner Automobile Company v. Graham, 230 Pac. (2d) 904, the testimony showed facts as follows: A customer deposited $50.00 with the Zoellner Automobile Company under an oral agreement whereby the dealer was to sell the customer the eleventh automobile delivered by the manufacturer during the year. The dealer accepted $50.00 deposit from the customer.

The dealer breached his contract by refusing to deliver the customer the eleventh car.

The higher court held that the customer could recover from the dealer damages equal to the difference between the value of the eleventh automobile on the date it was received by the dealer, and the amount the same automobile would have cost the customer if he had purchased it in open market on this date.



A Program for 30 million new Americans

LISTEN to the voices of 30 million new Americans. They are answering the pessimists who say we are threatened with depression because we can't keep our farms and factories busy.

Let these pessimists read the future in the census returns. There is a tremendous upsurge in our population. Last year nearly 4 million babies were born. By 1960 we shall total 170 million people--30 million more than when war ended in 1945. This adds to our domestic market more people than there are in Canada and Australia combined.

Providing for these 30 million new Americans can keep our production machinery going at capacity. They call for new hospitals, schools and churches. Larger families need bigger houses to replace postwar houses that are too small now. More and bigger families need improved home equipment and more new automobiles. In short, to maintain and improve living standards for our children, we must work harder than ever before. To supply the needs of our 1960 population, including adequate national defense, it is estimated that the productivity of the individual worker must increase at least 30%, with additional investment of over 200 billion dollars in capital facilities.

There should be no room in this picture for depression. But we must have economy in government, elimination of waste and extravagance and a reduction of taxes and public debt. If we encourage private incentive, thrift and investment, we can bring about the greatest advance in health, wealth and happiness that America has ever known.

QUALITY V YOUNGSTOWN SERVICE

The Youngstown Sheet and Tube Company

General Offices--Youngstown 1, Ohio
Export Offices--500 Fifth Avenue, New York

MANUFACTURERS OF CARBON ALLOY AND YOLOY STEELS

RAILROAD TRACK SPIKES - CONDUIT - HOT AND COLD FINISHED CARBON AND ALLOY BARS - PIPE AND TUBULAR PRODUCTS - WIRE - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - RODS - SHEETS - PLATES.

Do You Know?

If there are any circumstances under which a company can avoid paying state sales taxes on merchandise?

If a purchaser gives an order to a seller, is the contract enforceable if the seller fails to write and accept the order?

If a purchaser refuses to accept and pay for purchased merchandise, what damages the court will allow the seller?

If a seller breaches a guarantee that equipment is in good condition, can the purchaser rescind the contract?

Court decisions on these and similar problems are discussed in Mr. Parker's article.

Purchaser Repairs Equipment

QUERY: If a seller breaches a guarantee that equipment is in good condition, can the purchaser rescind the contract and recover the purchase price plus the expenses he incurred in endeavoring to make the equipment suitable for his purposes?

According to a late higher court decision, the answer is YES, if the purchaser promptly returns the equipment to the seller and demands return of the full purchase price, plus the expenses he incurred as a result of the seller's breach.

For example, in Maurice Company v. Chaffin, 241 S.W. (2d) 257, the testimony showed facts as follows: A seller sold to one Chaffin certain equipment.

In subsequent litigation, Chaffin alleged that the seller's salesman represented that the equipment was in first class condition, that all parts had just been completely overhauled, and that it was in good usable condition. The testimony showed that Chaffin spent approximately $366.00 in attempting to repair the equipment following the sale to make it operate. The evidence showed that Chaffin within a few weeks notified the seller of his election to rescind the contract, and further offered to return the equipment, in substantially as good condition as when the sale was made.

The higher court held that Chaffin could return the equipment to the seller, recover as damages the full contract price, and also recover $366.00 spent in making necessary repairs. This court said:

"The trial court correctly allowed for the repairs made at appellee's (Chaffin's) expense after the sale."

For comparison see Williams v. Maier, 210 S.W. (2d) 499. Here the purchaser of a pump attempted to rescind the contract of sale for an alleged breach of the seller's warranty. In an attempt to make the pump function, and serve the purpose for which it was bought, the purchaser made extensive repairs. Recovery for the money spent for these repairs was allowed the purchaser by the court on the ground that such repairs were the proximate result of the seller's misrepresentations and breach of warranty. The court said:

"In addition he would be entitled to the cost of installation of the pump, and the cost of the repairs, and the parts which he bought".

And again see Moss v. Yount, 296 Ky. 415. In this case it was held that where a tractor was worthless except as junk, the buyer's reasonable efforts and expenses to restore the tractor to a condition where it would serve the purpose for which it was bought, were the proximate result of the seller's breach of the warranty, and the purchaser could recover from the seller all of these expenses, and the sale price originally paid to the seller.

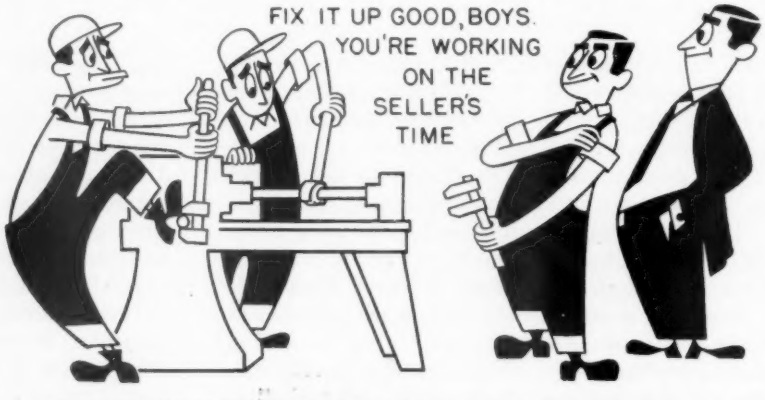
Validity of Taxation

QUERY: Under what circumstances can a company avoid paying the state sales taxes on merchandise?

The answer to this question is that a person can avoid paying sales taxes on merchandise only when the court may construe the state tax to *not include* such merchandise.

For illustration, in Zook v. Perkins, Director of Revenue, 195 Pac. (2d) 962, a state law was litigated which exempts from sales taxes all persons engaged in the business of manufacturing, compounding for sale, profit or use, "any article, substance or commodity, which tangible personal property enters into the processing of or becomes an ingredient or component part of the product or service which is manufactured."

The higher court held that the law does not exempt from sales taxation a company engaged in recapping automobile tires because it was not engaged in "manufacturing" but in merely "repairing" old tires. The court said:



COST OF REPAIRS IS RECOVERABLE FROM SUPPLIER IF CONDITION OF EQUIPMENT HAS BEEN MISREPRESENTED

"Manufacture implies a change, but every change is not manufacture. . . . There must be transformation; a new and different article must emerge, 'having a distinctive name, character, or use'. The tire retreader always uses as a basis of his operation an existing worn tire."

For comparison, see Ashton v. Department, 52 N.W. (2d) 174.



controlled wet strength makes

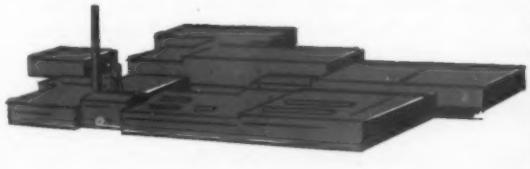
Fort Howard Paper Towels

feel better,

dry better!

FORT HOWARD PAPER COMPANY, GREEN BAY, WISCONSIN





Fort Howard Towels Fit *Any* Folded Towel Cabinet

There's no economy in buying two paper towels to do the work of one . . . no satisfaction in using a towel that's too stiff for comfort, or falls to pieces when it's wet.

For real economy and full satisfaction, buy Fort Howard Paper Towels. CONTROLLED WET STRENGTH makes Fort Howard Towels strong and firm without sacrificing softness or pliability. STABILIZED ABSORBENCY provides effective drying power regardless of age, and Fort Howard Towels are ACID FREE.

Fort Howard Towels are available in seventeen grades and folds, to fit your present folded towel equipment . . . and we can furnish new equipment if needed. For Towels that are always available, consistently high quality, and priced right, call your Fort Howard distributor salesman today!

For 33 Years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins.

Here a company in Michigan receives orders through the mail from out-of-state customers to install equipment on chassis of the customer's motor vehicles. The instant the equipment is installed on a vehicle, legal title to the equipment immediately passes to the customer.

The higher court held that these customers must pay tax on the equipment to the State of Michigan, because title passed to the customers while the vehicle and equipment were in Michigan, and the state law provides for payment of taxes on merchandise held in the state by out-of-town companies.

Payments in Bankruptcy

QUERY: If a purchaser is insolvent, can he pay favored sellers for purchased merchandise and thereby save these sellers financial loss?

According to a late higher court decision, the answer is NO. This is so because payment of debts by an insolvent purchaser is illegal. Also, the courts hold that property sold by an insolvent person can be recovered from the purchaser by the trustee in bankruptcy.

According to this late higher court decision, if a seller forces a purchaser to make a payment on an account, or accepts a payment at the time he knows that the purchaser is insolvent, such seller cannot keep the money but he must pay it to the trustee in bankruptcy for equal distribution among the general creditors.

For illustration, in H. D. Lee Company, Inc. v. Henrietta Plumbing Company, 187 Fed. (2d) 942, a purchaser was forced by a seller to pay to the latter certain money four months before the purchaser was bankrupt. The testimony showed that the seller knew, or had reasonable cause to believe, that the purchaser was insolvent at the time of the payment. Hence the higher court held that these payments must be returned to the trustee in bankruptcy. The court said:

"From the facts and other details the court found that insolvency existed at the time of the collection of the defendant's judgments."

Equipment is Defective

QUERY: If a purchaser of defective merchandise or equipment is injured by the merchandise or equipment, is the seller liable in damages to the purchaser?

According to a late higher court decision, the answer is YES.

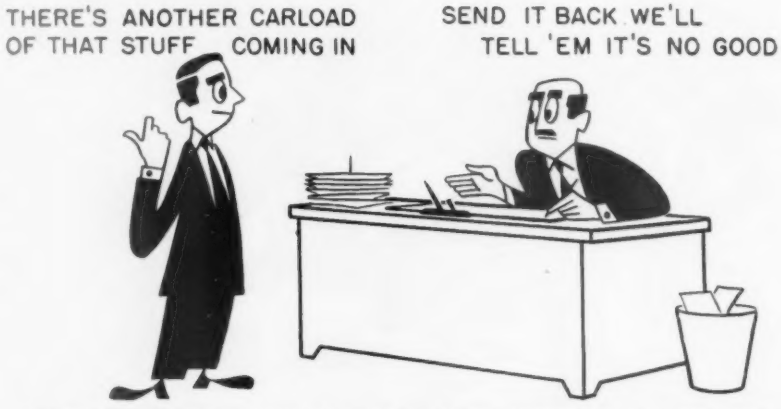
Recently a higher court allowed a purchaser $126,182.00 damages for permanent injuries caused by defective merchandise. The jury awarded this amount of damages and the higher court approved the verdict.

See Trowbridge v. Abrasive Company, 190 Fed. (2d) 825. Here one Trowbridge was 44 years of age when he was injured by the disintegration of a grinding wheel. Trowbridge sued the seller for $150,000 damages, proved by expert witnesses that the manufacturer's method of manufacture, known as the "closed setting", was conducive to the formation of internal flaws because gas pockets form during the curing operation and no bond occurs between the adjacent grits on each side. The opinion of the expert was that such a defect would result in the disintegration of the wheel when used in the customary manner.

In view of this testimony, the jury held Trowbridge entitled to recover $126,182. The manufacturer appealed to the higher court on the grounds that such a large damage allowance was excessive.

The testimony showed that Trowbridge was permanently and totally disabled and was hospitalized for fourteen months suffering extreme pain. The higher court approved the damages allowed by the jury, saying:

"A careful study of the evidence of damages in the record has failed to convince us that the verdict was so grossly excessive as to justify reversal on this ground."



BUYER CANNOT CLAIM THAT MERCHANDISE IS UNSATISFACTORY IF HE HAS ACCEPTED SIMILAR SHIPMENTS ON ORDER

Court Implies Satisfaction

QUERY: If a purchaser signs a sales contract containing a clause that he cannot cancel the contract, can he avoid paying the contract prize for the merchandise on the grounds that the merchandise is unsatisfactory?

According to a recent higher court, the answer is NO, if previously the purchaser paid for other similar merchandise ordered from the seller.

For illustration, in Dixie Pine Products Company v. Universal Refining Products Company, 43 So. (2d) 752, the seller sued a purchaser for the contract price of a shipment of a chemical cleansing compound for steam boilers. The purchaser alleged that the cleansing compound was unsatisfactory and therefore he was not obliged to pay for same. The testimony showed these facts: The shipment of the cleansing compound was made pursuant to a written order signed by the purchaser and also signed by the seller's salesman. This order gave an accurate description of the merchandise, the price, and the terms of sale. The order stipulated that all special agreements between the buyer and seller were incorporated on the order, and further the order was not subject to countermand. The goods were shipped pursuant to the terms of this order.

The jury held that the purchaser must pay the full contract price. The higher court affirmed the verdict and said:

"Prior to the order here sued upon appellant (purchaser) had bought several orders of the same commodity aggregating about 5,000 pounds, and after using the product for several months placed the order now in question."

On the other hand, this court explained that if the purchaser had not previously purchased similar merchandise from the seller, and the testimony showed that the



Skillful Molding Creates

ITS NEWEST CABINET MEMBER

Cabinet molded for Zenith Radio Corp., Chicago

This cabinet which we molded for Zenith's new "Tip Top Holiday" portable is the latest in a long line of plastic cabinets molded by Mills. In shape—size—color—these cabinets have varied as widely as the products for which they were made.

All were alike however in one respect. Each was engineered and molded so that its attractive, sales appealing appearance was matched by sturdy durability.

The fact that we received additional cabinet molding jobs as well as other molding orders from the same clients proves we can be depended upon for top quality every time.

Let us show you today how our unique combination of sound engineering—*careful, correct* material selection and skillful molding can create a better plastic product for you.



*Write on your letterhead for the new Injection Molded and Extruded Plastics Catalog. Or, for detailed information about [redacted] *, piping, tubing and fittings, write for circulars containing data and illustrations. *Trade Mark Registered.*

ELMER E. MILLS CORPORATION

INJECTION MOLDED and EXTRUDED Thermo-Plastic Materials Including Cellulose Acetate, Cellulose Acetate Butyrate, Acrylates, Methacrylates, Styrenes, Vinyls, Vinylidene Chloride, [redacted] *

2930 NORTH ASHLAND AVENUE • CHICAGO 13, ILLINOIS

shipped merchandise did not equal the quality specified in the sale contract, the purchaser could have shipped the merchandise back to the seller, and refused to pay the contract price and recovered damages from the seller. However, the purchaser could not cancel or countermand the order, because the contract clearly provided against countermand.

Offer and Acceptance

QUERY: If a purchaser gives an order to a seller, is the contract enforceable if the seller fails to write and accept the order?

According to a late higher court decision, the answer is YES, if from the testimony the court may decide that the seller "impliedly" accepted the order.

For example, in Patty v. Berryman, 212 Pac (2d) 937, the testimony showed facts as follows: A purchaser wrote a letter to a seller offering to purchase twenty-two Williamson Prefabricated Houses for a total price of $63,800.00. The seller did not answer the letter, but wrote across its face "accepted" and proceeded to prepare to make delivery of the houses.

What else could the term "accepted" mean except that he agreed to the terms set forth, and necessarily agreed to sell on those terms?"

Also, see Gregg v. McDonald, 73 Cal. App. 748. This court stated:

"It is uniformly held that the obligation of a party need not be expressly stated in the contract, but may be inferred from the undertakings of the other party."

Other higher courts have held that if a seller fails to immediately notify a purchaser that his letter or offer to purchase merchandise is accepted, the purchaser may, without liability, cancel the order or contract at any reasonable time before the seller mails his acceptance. But if the purchaser does not promptly cancel the order or contract and the testimony shows that the seller proceeded to prepare to deliver the merchandise to the purchaser, there is an "implied" acceptance on the part of the seller and a valid and enforceable contract exists.

Stored Goods are Destroyed

QUERY: If goods stored in a warehouse are damaged, lost, or destroyed, will the court hold the warehouseman liable without the storer proving that the warehouseman's negligence caused the loss? Under what circumstances is a warehouseman liable in damages for lost or destroyed stored merchandise, when no definite proof is given that his negligence caused the loss?



IN ORDER TO AVOID LIABILITY, WAREHOUSEMAN MUST PROVE HE TOOK THE USUAL PRECAUTIONS

In later litigation, the higher court held that a valid contract was made, saying:

"It is true that in the above document Berryman (purchaser), made all of the express promises, and that Patty made no express promise. But a promise to sell on the part of Patty is necessarily implied. The letter identifies the property to be purchased, fixes the purchase price and sets forth the terms of the proposed transaction in minute detail. Patty (seller) wrote 'accepted' on the letter, and signed his name.

The answer is: When a jury decides that negligence of the warehouseman caused the loss, the warehouseman is liable. Fortunately the writer located a higher court decision which fully answers these important legal questions.

For example, in Denning Warehouse Company v. Widener, 172 Fed. Rep. (2d) 910, the testimony showed facts, as follows: One Widener stored in a warehouse owned by the Denning Warehouse Company a large quantity of combustible merchandise. One night a fire of unknown origin destroyed the warehouse in which the merchandise was stored. Also, the merchandise was totally destroyed. Widener sued the Denning Warehouse Company for the value of the destroyed merchandise.

The warehouse company's counsel argued that it could not be liable because Widener failed to prove that the fire was caused by the negligence of the warehouse company's employees. However, Widener proved these facts: The warehouse company (1) failed to have a night watchman on duty at the time of the fire; (2) permitted inflammable trash to collect in the warehouse; and (3) permitted smoking in the room where the merchandise was stored.

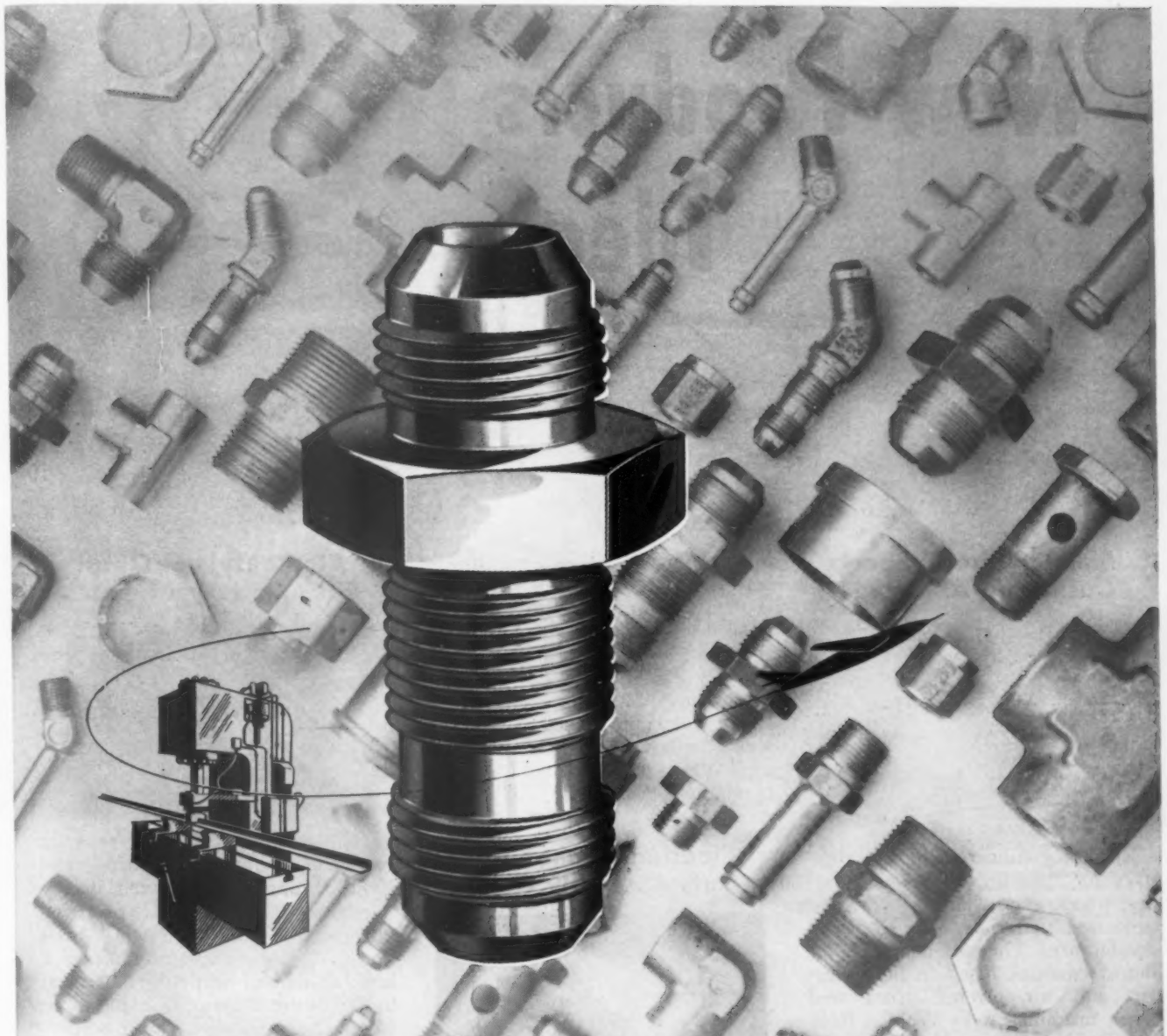
Widener alleged that these acts were the proximate cause of the fire. Based upon this testimony, the lower court entered judgment against the warehouse company for the full value of the destroyed merchandise. The higher court approved the verdict, saying:

"It is for the jury to determine whether the specific acts of negligence proximately contributed to the fire. Of course there was no direct evidence tending to show that any specific act of negligence was the proximate cause, but it was a permissible inference from the facts as found."

Hence, in this case the higher court held that the jury was justifield in deciding that the warehouse was destroyed as a result of the warehouseman's negligence. In other words, while there was no direct proof that the warehouseman's negligence contributed to the fire, yet the jury was justified in deciding that the "circumstantial evidence" indicated that the warehouse and contents were destroyed through negligence of the warehouse company's employees.

For comparison, see Luke v. Security Storage & Van Company, 24 So. (2d) 692. This court said:

"A warehouseman, in order to escape responsibility for the loss of goods intrusted to its care, must show that the loss did not occur through its fault; but where it is shown that the usual precautions have been taken to prevent a fire, it is not liable for the loss due to the fire."



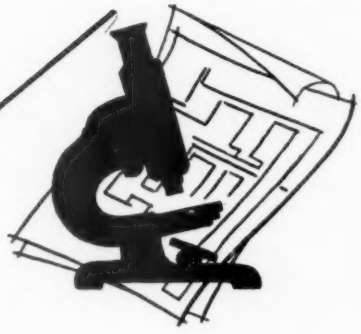
FITTINGS THAT PASS THE TEST

For aircraft, hydraulic and industrial applications *where there must be no doubt of precision and strength!* You get assurance of such critical accuracy from Dumont. Every conceivable test *certifies* the quality. To quote your next requirements call on Dumont, an approved source, for fittings and hardware in virtually every AN number.

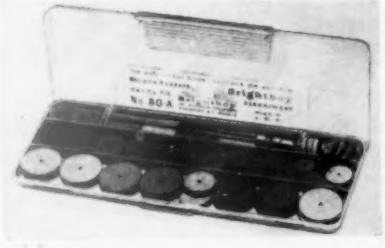
DUMONT AVIATION Associates

1401 FREEMAN AVENUE • LONG BEACH 4, CALIFORNIA
Phone 904-931 • NEvada 6-3341 • WUX or Teletype LB 88-138
ENGLEWOOD, NEW JERSEY • KANSAS CITY, MISSOURI
DAYTON, OHIO • DALLAS, TEXAS

New Products Ideas



Smaller Size Rubber-Cushioned Abrasives

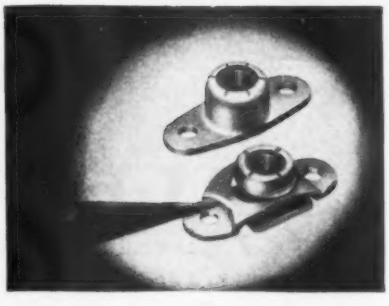


Brightboy rubber-cushioned abrasives for finishing all metals, plastics, wood, glass, hard rubber, and laminated materials, now come in smaller sizes. They are adaptable for almost countless uses on light electric and air-powered hand and bench machines, says Weldon Roberts Rubber Co., Sixth Ave. & N. 13th St., Newark 7, N.J. An assortment of 44 pieces in the sizes most frequently used with light power equipment comes in a transparent plastic case that fits conveniently into the pocket, work-bench drawer or tool box. A chuck and mandrel are included. The working advantages of both light abrasive and rubber combined often give users time savings up to 50% over customary methods and materials, the company claims.

Lead-Lag Ballast Cuts Wattage Losses by 25%

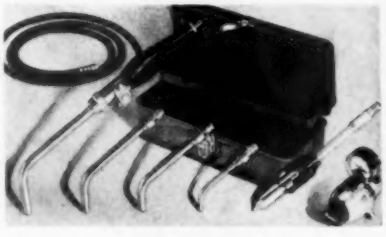
Series economy and size are combined with lead-lag performance and dependability in a new lead-lag slimline ballast according to Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa. Westinghouse says a 25% reduction in wattage losses now puts lead-lag in the series-ballast class for operating economy. New circuiting and improved production methods have reduced the size of the ballast to 3⅛" by 2⅝" by 13¾" with a corresponding reduction in weight. Initial cost approaches that of the series ballast. The new ballast is available in 38, 58, and 75-watt two-lamp sizes.

Floating Anchor Nut Cuts Assembly Costs



Aircraft component makers can get quick self-alignment and simplified assembly of their product at reduced costs through use of the new A-41 floating anchor nut, says Elastic Stop Nut Corp. of America. Esna claims weight savings of 1.3 lbs. per thousand pieces over earlier anchor nuts of this type. They are said to eliminate costly lining-up operations often necessary to accurately install one-piece anchor nuts, with reported savings as high as three to four cents a unit. The nut is the same size as the firm's standard non-floating anchor nut and complies with all AN 366 dimensional and performance requirements. Esna is at 2330 Vauxhall Rd., Union, N. J.

Air-Acetylene Outfit Does Variety of Work



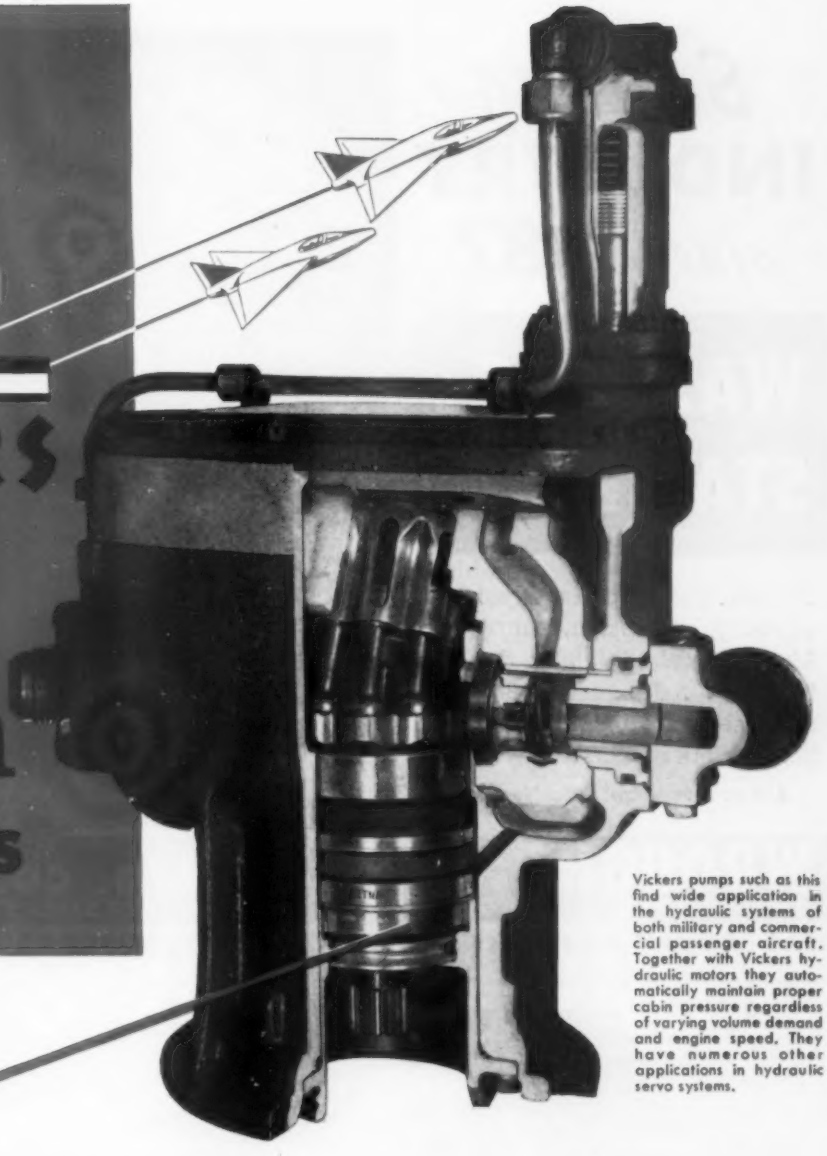
Full capacities of five separate outfits for soldering, heating, and light brazing are combined in one new Prest-O-Lite 5-in-1 precision air-acetylene outfit. All work from fine soldering to work requiring a large volume of heat can be handled by the outfit. Four open-flame torch stems and a pointed copper soldering iron attach interchangeably to a newly designed precision control handle which is equipped with a pilot needle valve contained in the shutoff valve. The acetylene pressure regulator is fully adjustable to deliver acetylene at any pressure up to 13 lb. per sq. in. as long as usable pressure remains in the tank. Made by Linde Air Products Co., 30 E. 42nd St., New York, N.Y.

Portable Unit Controls Humidity

A portable electrical humidifying unit that controls humidity in all types of installations has been introduced by Halsey W. Taylor Co., Warren, O. Among its features are: special evaporator, rubber mountings, 3-bladed noiseless fan, quiet ⅛ hp motor-compressor, and single switch control. Literature on the new unit, known as the Air-O-Dryer, is available.

another successful combination

VICKERS PUMPS and Aetna BEARINGS



Vickers pumps such as this find wide application in the hydraulic systems of both military and commercial passenger aircraft. Together with Vickers hydraulic motors they automatically maintain proper cabin pressure regardless of varying volume demand and engine speed. They have numerous other applications in hydraulic servo systems.







Standard and Special Ball Thrust Bearings • Angular Contact Ball Bearings • Special Roller Bearings • Ball Retainers • Hardened and Ground Washers • Sleeves • Bushings

PUMPS made by Vickers, Incorporated, of Detroit, Michigan, are serving with utmost reliability today in one of the most grueling applications found anywhere in modern aircraft—the hydraulic system.

This enviable record for dependability started when Vickers, to solve a nagging anti-friction problem, switched to Aetna bearings. With every other aspect of the Vickers pump perfected and thoroughly service proven, the addition of Aetna bearings completed the picture. Today, Vickers hydraulic pumps are earning new laurels for performance with an ever-widening number of aircraft makers. For example, one major airline using Vickers-equipped planes, flew 304,578 supercharger pump hours during 1951 *without a single bearing failure.*

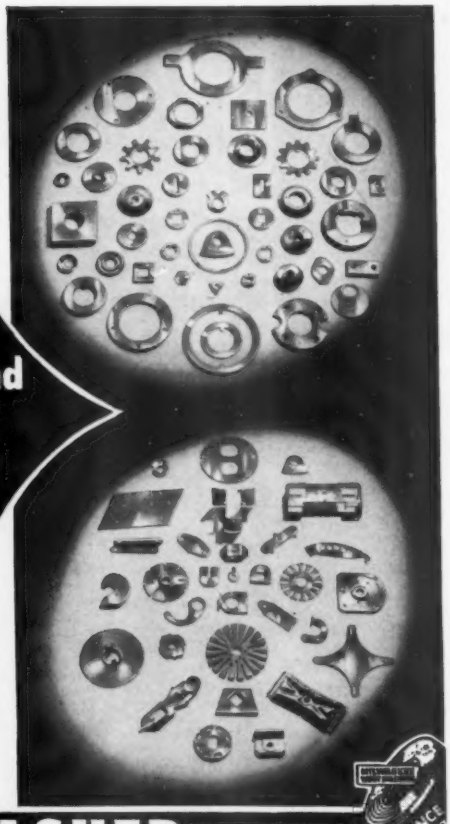
Solving difficult bearing problems to help make good products better has been one of Aetna's most intensified engineering activities for 36 years. Why not call on Aetna the next time YOU have a problem involving bearings or precision parts?

AETNA BALL AND ROLLER BEARING COMPANY

4600 Schubert Avenue • Chicago 39, Illinois

Serving
INDUSTRY
since **1887**

WASHERS and STAMPINGS



Standard and Special Washers, of every description, from every kind of material, any desired finish . . . designed for every purpose . . . utilizing more than 22,000 Sets of Dies.

Let us Quote on Your Needs.

WROUGHT WASHER MFG. CO.
THE WORLD'S LARGEST PRODUCER OF WASHERS
2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN



around the world, it's

HOOVER BALLS

made of

CHROME STEEL • CARBON STEEL • STAINLESS STEEL
BRASS • BRONZE AND MONEL METAL

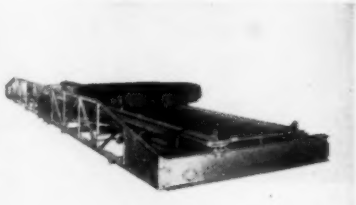
"America's Foremost Ball Manufacturer"

HOOVER BALL and BEARING CO.
Ann Arbor, Michigan

Versatile, Inexpensive Vacuum Tester

Inexpensive and very versatile—that's the way Gits Bros. Manufacturing Co. describes its new vacuum tester. These are just a few of the items it can test—shaft seals, diaphragms, cylinders, bellows, castings, small fuel tanks, pneumatic valves, manifolds, magneto parts, miscellaneous aircraft parts, plastics, rubber and graphite. Tests can be run to reveal porosity or surface fissures—or to "prove" lapped surfaces, ground surfaces or surface flatness. It is small, compact and comparatively low priced. The complete unit is made up of a vacuum pump and in instrument panel with an attached testing plate. It can be used by unskilled labor with maximum efficiency. Gits is at 1866 S. Kilbourn Ave., Chicago, Ill.

Lower-Priced Electric Traveling Cranes



Cranes for average industrial requirements at prices lower than those of the usual heavy duty electric cranes are offered by Shaw-Box Crane & Hoist Divn., Manning, Maxwell & Moore, Inc., Muskegon, Mich. The standardized overhead cranes, from 1 to 20 tons capacity, are identified as Series D Load Lifters. Three distinct types have been developed for specific requirements. Among the cranes' features: antifriction bearings throughout; rotating axles on both the bridge and trolley; variable speed magnetic control operated by push buttons on floor controlled cranes, and by master switches mounted in a new pulpit type cage on cage-controlled cranes. A wide variety of speeds and heights of lift are available.

Waterproof Tape

If you're packaging expensive or delicate equipment—such as electronic measuring meters, gages, "sensitive" motor parts, etc.—Industrial Tape Corp., New Brunswick, N. J., suggests trying its new waterproof tape, Permacel #69.

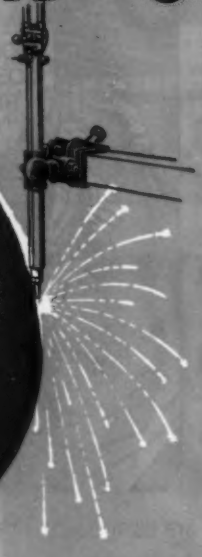
(*Please turn to page* 138)



at CONVENTION HALL in PHILADELPHIA

Airco will bring you an "operators-eye-view" of the Aircomatic welding process . . . a continuous "live" demonstration of the #50 travograph. Here's a rare opportunity to view the latest in welding and cutting equipment! Movies . . . Exhibits . . . Welding Apparatus . . . Stationary and Portable Cutting Machines . . . Gas and Arc Welding Accessories.

IN WELDING AND CUTTING!



SEE 'EM IN ACTION!

THE NATIONAL METALS CONVENTION OCT. 20-24

BOOTH 1623

AIRCO®

DEALERS AND OFFICES IN MANY PRINCIPAL CITIES

AIR REDUCTION

AIR REDUCTION SALES COMPANY • AIR REDUCTION MAGNOLIA COMPANY • AIR REDUCTION PACIFIC COMPANY
REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL
DIVISIONS OF AIR REDUCTION COMPANY, INCORPORATED

at the frontiers of progress you'll find

Lyle C. Harvey, President of Affiliated Gas Equipment, Inc., says:













Thousands of America's leading companies are using Flying Tiger Air Freight. ***Are You?***

FLYING TIGERS... ANOTHER BUSINESS BUILT ON **'CAN DO'**

Write for "THE AIR FREIGHT WAY TO LOWER COSTS AND BETTER SERVICE"

The Flying Tiger Line Inc.

GENERAL OFFICES: LOCKHEED AIR TERMINAL, BURBANK 3, CALIFORNIA. CABLE: FLYTIGER

(*Continued from page* 134)

Made with 80-count cotton cloth backing and coated with specially-processed plastic, the new tape is said to be practically impervious to water. Its aggressive adhesive mass makes a water-tight seal of great value in overseas packaging. The tape is available in all standard colors in 60 yard rolls in full case lots. It is manufactured to any width.

All-Steel Pillow Blocks With High Load Capacity



Dodge Manufacturing Corp., Mishawaka, Ind., and Timken Roller Bearing Co. pooled their engineering knowledge and manufacturing experience to produce a new line of compact but rugged all-steel pillow blocks. High radial and thrust capacities and the stamina to take heavy-shock loads have been provided within minimum dimensions and with far less than usual weight. The bearings are fully self-aligning, with spherical outer race. They are available in both expansion and non-expansion types and have the successful adapter mounting. Double piston ring seals keep lubricant in and dirt and dust out of the bearing mechanism. The bearings are sealed both on and off the shaft. They are provided in shaft sizes from 2 15/16" to 10".

Power Bit Operates Without Jamming

Stanley Tools' new 100ED power bit with "50-50" brad-screw point can be started and stopped at any time, at any depth, without jamming or binding, even when used with light-weight ¼" drills. Designed for fully controlled power drilling in any three-jawed chuck, it is said to drill smoother, cleaner-cut holes rapidly and easily in soft or hardwood. Brad and screw type points are combined in a specially pitched single thread point. This Russell Jennings power bit is available in open stock and in two plastic roll kits—one with five different bit sizes, the other with eight. Stanley is located in New Britain, Conn.

"LONG LIFE OF G-E IGNITRONS SAVES US HUNDREDS OF DOLLARS A SOCKET!"



Says

Arnold F. Weil, Chief Plant Engineer,
Solar-Sturges Mfg. Div.
of Pressed Steel Car Co., Inc.,
Melrose Park, Illinois.

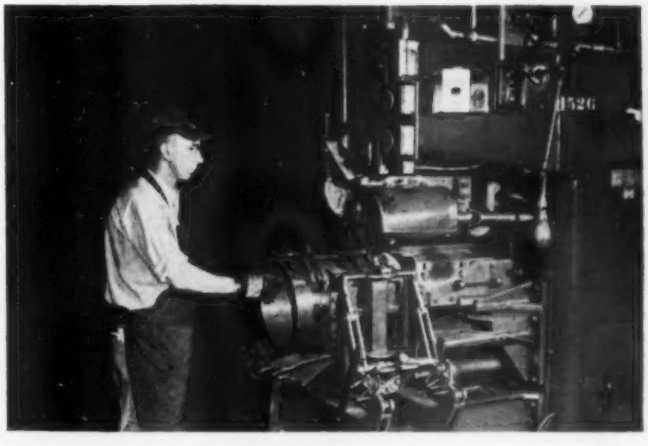
"In several cases, our G-E ignitrons have been in operation more than three years. They've piled up work hours to twice or three times normal life. They have saved us many costly tube replacements, since we employ ignitrons extensively for welding, which is one of our main processes. Also, Solar-Sturges uses power tubes for induction annealing, and thyratrons and receiving tubes for control circuits. All these G-E types are dependable. They help us to keep machine outages at a minimum—another important factor in holding down our costs.

"General Electric tube service is prompt, and tube-maintenance counsel is available whenever we request it. We're more than satisfied!"



Electronic seam-welding seals the milk cans, waste receptacles, and metal cooking ware produced at Solar-Sturges—one of Pressed Steel Car Company's many factories for products ranging from auto bumper guards to complete railroad cars. G-E tube reliability helps to keep welder output high . . . maintenance needs and costs low.

● Get from your G-E tube distributor the benefits of (1) a long-lived, more dependable tube product, (2) fast deliveries out of local stocks, (3) tube-conservation help that will mean dollars saved through operating economies! Phone your distributor today! *Tube Department, General Electric Co., Schenectady 5, N. Y.*



You can put your confidence in—

GENERAL ELECTRIC

Tough as a . . . 3-Horned Bull



THAT'S TRIPLEX . . .

THE FULL LINE OF THREADED FASTENERS

Of course there is no such thing as a three-horned bull. That's why we used this illustration. You looked at it because it's so different. And now that you've read this far, it gives us another chance to impress you with the triple-toughness of all Triplex Threaded Fasteners.

The tougher they are, the better they hold parts together. Why not specify Triplex—long known as unexcelled in toughness and holding power.



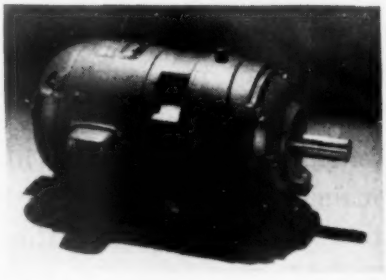
TRIPLEX *for* **TOUGHNESS**

CAP AND SET SCREWS · BOLTS, NUTS AND RIVETS

High-Strength Plastic Resists Chemicals

A new plastic material called Chemrok possesses a high order of chemical resistance and is capable of withstanding heavy mechanical loads at high temperatures. Its resistance to acid solutions such as sulphuric and hydrochloric is said to be superior to that of other thermosetting materials. Its point of sag is 50F to 100F higher than chemically resistant hard rubbers. The manufacturer, The Richardson Company, Melrose Park, Ill., says the moldable material can be utilized in complex parts of almost any shape or size. It is expected to find wide usages as a corrosion-resistant material in the rayon, pulp and paper, petroleum, mining, and various chemical process industries.

Three-Piece Gear Motor Simplifies Maintenance



A new gear motor, designed to simplify maintenance in case of electrical failure of the stator, is offered by General Electric Company's Small and Medium Motor Department. It's built in three pieces to permit quick and easy removal of defective stators without disturbing gear components or gear connections to the load. G-E Tri-Clad motor construction gives extra protection against operating wear and tear, physical damages, and electrical breakdown. Other features are a compact, planetary gear, and a mechanical adapter. The gear is available in speed ratings of 780 to 13.5 rpm. The motor is available in ratings of 1 to 75 hp for standard applications and up to 200 hp for special applications. G-E is at Schenectady 5, N.Y.

Die and Flat Stock For Hardening In Air

A new type of precision ground die and flat stock made to a special analysis for hardening in air has been announced by The L. S. Starrett Co., Athol, Mass. Five per

(*Please turn to page* 144)

His Royal Nibs... **NIBROC® TOWELS**







With NIBROC . . . water disappears from your hands like magic! This gives you economy—for a second towel is not necessary. Because NIBROC towels dry drier faster, washroom traffic is speeded up—particularly during peak load periods . . . lunch and closing time. Tie this in with wet-strength, freedom from lint, softness, and you have the balanced NIBROC towel preferred by more offices, factories, schools, etc., than any other towel. Sold by authorized dealers throughout the United States and Canada. Write Dept. **GN-10,** Boston, for name of one nearest you.

BROWN QUALITY

COMPANY, Berlin, New Hampshire

CORPORATION, La Tuque, Quebec

General Sales Offices:

150 Causeway Street, Boston 14, Massachusetts.
Dominion Square Building, Montreal, Quebec.

Coming! New Companion Product to World-Famous Nibroc Towels.
Watch for announcement by His Royal Nibs.



BALANCED FOR EASY WHEELING!

Equipped with steel wheel or wheel with zero pressure or pneumatic tire.

You'll find it so easy to wheel heavy loads in Sterling Barrows. Only a minimum of effort is required. Sterling's perfectly balanced construction permits 80% of the load to be carried on the wheel . . . only 20% by the operator. This increases efficiency . . . allows more loads to be hauled each day . . . reduces hauling costs.

ORDER NOW!

DEALER PLAN AVAILABLE. WRITE FOR DETAILS.

Model C5W with Pneumatic Tired Wheel and Wood Frame.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Look for this Mark of STERLING Quality

Sterling WHEELBARROWS

"Water Rolls Off DOLCOWAX too!"

ON EVERY COUNT IT'S TOPS IN FLOOR WAX!

DOLCOWAX

. . . repels water. Moisture will not mar its lustrous, satiny wax film;
. . . handles well, spreads and levels, easily without streaking;
. . . needs no rubbing or polishing;
. . . dries quickly to a long-lasting attractive, protective surfacing for your floors;
. . . welcomes heavy traffic, because traffic *improves* its lustre;
. . . is free from float or sediment—doesn't jell on prolonged storage;
. . . is equally at home on wood, linoleum, cork mastic and rubber.

DOLGE guarantees that, regardless of price, no other wax will outwear DOLCOWAX! Let your DOLGE Service Man demonstrate—or write us for details.

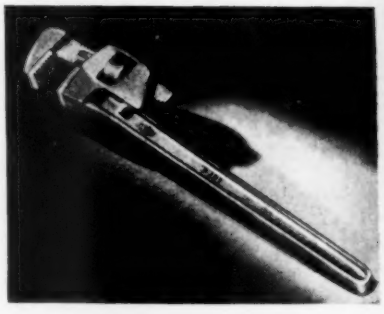
Dependable DOLGE

WESTPORT, CONNECTICUT

(*Continued from page* 142)

cent chromium content makes the stock especially wear resistant, and Starrett recommends it for punches and dies used in long production runs, or for stamping silicon, stainless steel, Monel and other abrasive materials. An average of 50% more pieces per sharpening can be expected than with oil hardening steel, it is stated. The stock maintains accuracy of dimension throughout the heat treatment process. Rejects due to cracking or distortion are eliminated and grinding to final size is substantially reduced.

Pipe Wrench Jaw Inserts Replaced at Low Cost



Now Ampco pipe wrench users can replace worn gripping surfaces with jaw inserts at approximately one tenth of previous costs. Formerly an entirely new upper jaw had to be bought when teeth became worn. The new tool is made with inserts which are interchangeable in upper and lower jaws. No longer does the expensive upper jaw have to be scrapped because of a worn gripping surface. If you have a previous model of the wrench it can be easily modernized by sending for the "B" upper jaw assembly with new inserts at the regular price of the "B" part. Only inserts need be purchased thereafter. Made by Ampco Metal, Inc., 1745 S. 38th St., Milwaukee 46, Wis.

New Brazing Alloy

Westinghouse Electric Corp. has brought out a new copper-phosphorous-silver alloy for efficient brazing of copper, brass and bronze. Extreme fluidity and good wetting properties enable the new alloy, called Phos-Silver, to penetrate tight-fitting joints instantly to form strong ductile bonds. It can be used with any of the common brazing methods for brazing on copper or copper alloys, and is said to be ideally suited for applications where brazing temperatures are critical.

(*Please turn to page* 148)



ALL NEW! Shaft to shell, new motor completely redesigned, functional, no waste space.



TOUGH! New nylon insulation, braidless neoprene leads withstand insulation hazards.



QUIET! Magnetic noise cut by permanently fixed stator punchings, and new rotor design.



LONG LASTING! Switch, terminal board in shell, not in end-shield: prevents lead-damage.



EASY TO USE! Terminal box cover plate shows connections inside, lubrication outside.



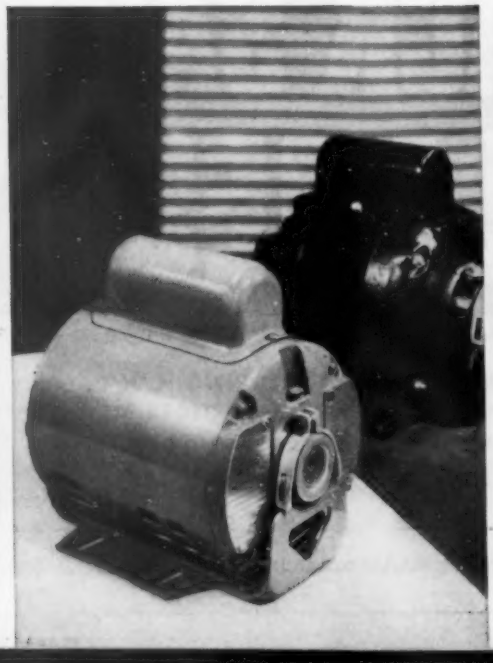
FLEXIBLE! Operates shaft up, down, any position. Cradle base allows rotation of motor.

Everything Industry Wants!

LIGHTER . . .

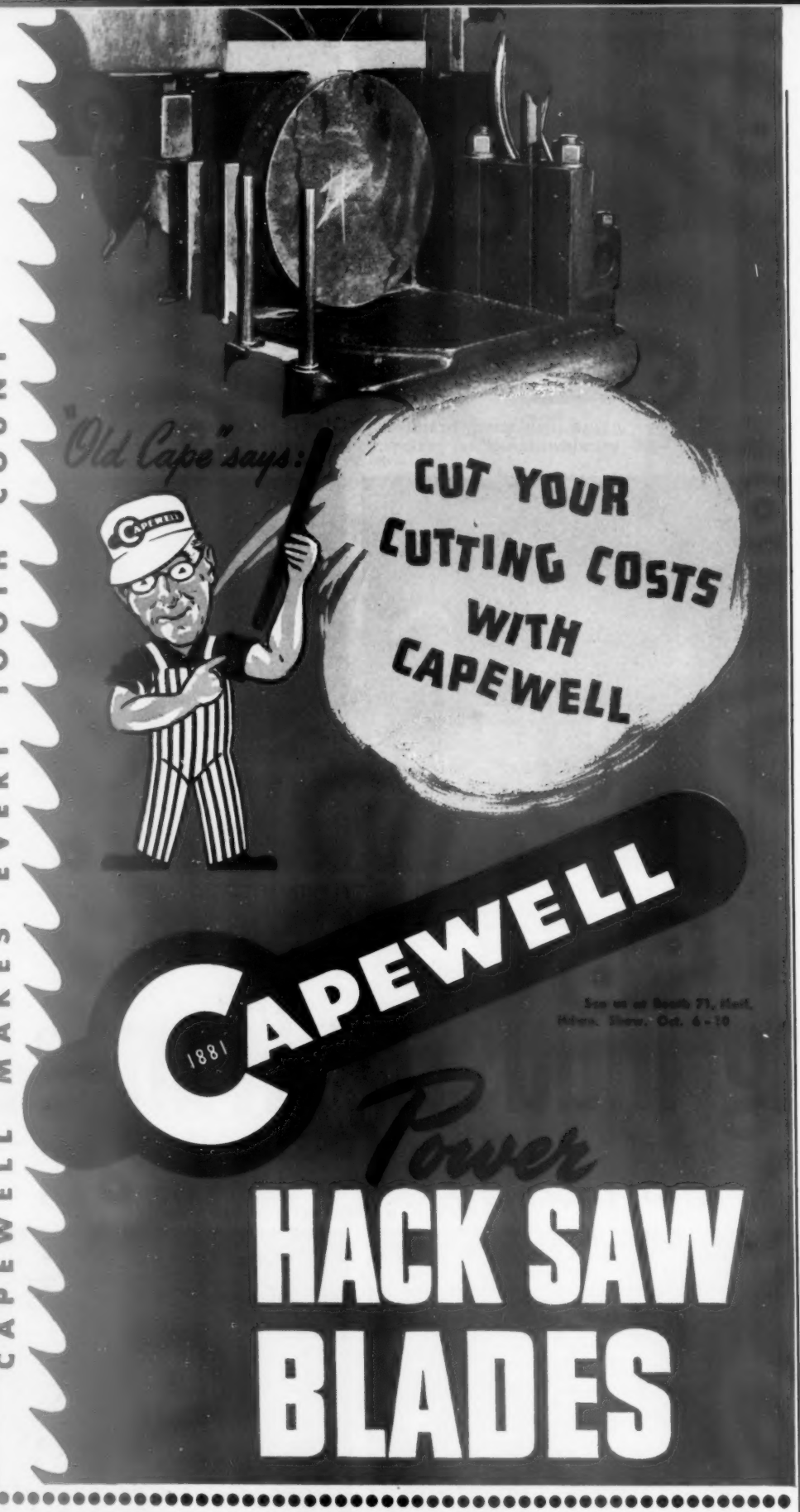


BETTER LOOKING . . .



MORE VERSATILE!







THE CAPEWELL MANUFACTURING COMPANY
72 GOVERNOR STREET • HARTFORD 2, CONN.

Please send me your bulletin on Power Hack Saw Blades.

Name _____

Company _____

Address _____

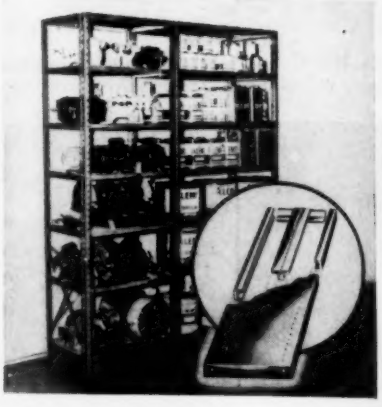
City _____ State _____

3CA82

(*Continued from page* 144)

Typical uses are found in the assembly of refrigerating and air conditioning equipment, motors and transformers, heat exchangers and plumbing installations. Westinghouse is at Box 2099, Pittsburgh 30, Pa.

Steel Shelving Holds Ton On Each Shelf



Each individual shelf in the Iron-Grip steel shelving line holds up to one ton. Specially reinforced sides and center of the shelves are equipped with 1" x 1" high carbon angle irons, ⅛" thick. Front and rear have U-shaped reinforced channels which are even stronger than the angles. The maker, Equipto, Division of Aurora Equipment Co., Aurora, Ill., says the Iron-Grip stud saves 60% of assembly time. The stud slips into a hole in the shelf and into a keyhole in the upright. The shelf is then pressed down and assembly is complete. No nuts, bolts or tools are needed for speedy shelf adjustment.

New Machine Screw Taps

Tests on new Hy-Pro machine screw taps for special work requiring oversize taps and taps with stronger spiral point are reported to show they cut costs by giving longer service and better performance. Each type is specifically designed to handle a particular threading requirement. They are: List #510-5, plastics, five flute, P.D. + .0025, "Hardernell Finish"; List #510-3, aluminum and zinc die cast metals, three-flute, P.D. + .0025; List #511, aluminum and zinc die cast metals, two flute P.D. + .0025, spiral point; List #315, alloy steels, spiral point, Ferrox finish. They are available in standard sizes: 6-32; 8-32; 10-24; 10-32. Made by Hy-Pro Tool Company, New Bedford, Mass.



Get

something extra

when you buy

lead valves

Do you look for sturdiness, dependability, and suitability in the lead valves you buy?

Do you expect valve type, size, pattern and flanging to meet your acid handling equipment specifications?

Of course you do! And when you order National you *get* what you look for. You *get* what you expect. And you get certain "extras" besides ... extras that spell highest quality.

For example, the lead used is the grade acknowledged best for acid-handling—St. Joe Chemical Lead. Furthermore, National Lead valves have precision, lathe-turned stems. They have full flow-ways. They're designed to permit repacking in service. And they have positive plug-seat fit.

Fabrication extras ... design extras ... quality extras ... Yes! And these extras you get, but never need specify, add up to outstanding service on the job.

That's why it pays to buy National valves ... for something extra in lead.

New York 6; Atlanta; Baltimore 3; Buffalo 3; Chicago 8; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; New England: National Lead Co. of Mass., Boston 6; Pacific Coast: Morris P. Kirk & Son, Inc., Los Angeles 23, Emeryville 8 (Calif.), Portland 10, Seattle 4; Canada: Canada Metal Co., Ltd., Toronto 8, Montreal, Winnipeg, Vancouver.

* Reg. U. S. Pat. Off.



Lead valves

with a NATIONAL reputation

LEAD COMPANY

...make gloves last

3 to 5 times LONGER!



THIS IS WHAT "WASH-RITE" DOES...

Throw *all* your dirty, worn leather, rubber or cotton gloves in our steel drum. Ship to us. We correctly clean, sterilize, *COMPLETELY REPAIR*, sort, reshape, pair and ship them back to you as serviceable as new. Depending upon the gloves and their usage, gloves are being re-claimed by us 3 to 5 times. We specialize only in laboratory controlled re-claiming of rubber, leather and cotton gloves, aprons and clothing. *Write for literature.*

10 Years of Proven Service

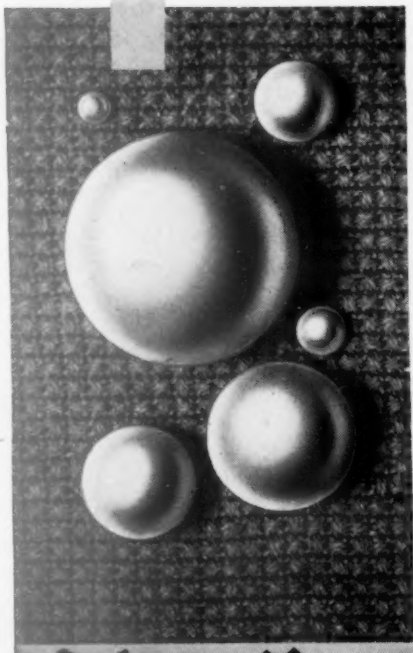
YOUR GOODS FULLY INSURED . . . WORK GUARANTEED

. . . it costs you nothing to find out. SEND US A FREE TRIAL ORDER

Wash-Rite Company, Inc.

1412-26 CORNELL AVENUE · INDIANAPOLIS 2, INDIANA

IN Size and Spherical Accuracy
Perfection of Surface
Uniformity—Dependable Physical Quality



NOT A BETTER BALL MADE..

And the service results from every Strom metal ball prove it—not only in the finest precision ball bearings but also in the lot of other ball applications where Strom balls are doing the job better.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

Strom STEEL BALL CO.

1850 So. 54th Ave., Cicero 50, Illinois

Largest Independent and Exclusive Metal Ball Manufacturer

Oil Mist Lubricators Give Automatic Warning



"They further reduce dependence on the human factor in automatic lubrication." That's the way Alemite Division of Stewart-Warner Corp. describes new Oil-Mist lubricators with one-gallon oil reservoirs and built-in automatic warning switches. The switches signal the operator by horn and red light, or shut off the machine as the oil level becomes too low, depending on model used. Previous models had provision only for visual measurement of oil remaining in the reservoir. The gallon-size reservoir cuts frequency of filling, and the signalling device makes it impossible for the unit to run dry accidently. Oil-Mist units with 12-ounce reservoirs are also available with built-in warning switches. Alemite is at 1826 Diversey Pkwy., Chicago 14, Ill.

New Gaging Head Has Wide Application



A new type of gaging head, known as the Plunjet, has been developed by the Sheffield Corporation, Dayton 1, O., for use in conjunction with the Precisionaire and other makes of air gages for gaging wide tolerance work. It is adaptable to a wide range of applications. The gaging head is calibrated by a feeler gage having minimum and maxi-

(*Please turn to page* 152)

Purchasing Agents like

TAYLOR LAMINATED PLASTICS



because...



In the television industry...

Extremely good electrical properties combined with low moisture-absorption qualities make Taylor Laminated Plastics ideal for parts in fly-back transformers, deflection yokes and many others. How can these basic materials serve you?



"This is Taylor Fibre Co." is a 24-page booklet that literally brings the entire Taylor organization to your fingertips. It describes how the many Taylor Laminated Plastics are made, how and where they're used, and more important, how you can use these basic materials to make your product better . . . at lower cost! Write today for a copy of Booklet P10.

. . . they make purchasing problems easier to solve. Taylor Phenol, Melamine and Silicone Laminates are uniformly dependable materials that are made to rigidly-held specifications. Design and production men like them.

. . . they are priced right, and are made in an almost limitless range of forms, weights, grades and sizes.

. . . they are nearly always available from stock, or on short delivery. When you buy Taylor Laminated Plastics you are assured of getting the right materials when needed.

. . . the completeness of the Taylor line makes it possible for the purchasing agent to buy many items from one supplier with the obvious advantages.

Make it a point to get in touch with a Taylor sales engineer when you need laminated plastics. Drop us a line today to get the facts on these versatile Taylor materials . . . including Taylor Vulcanized Fibre and Taylor Insulation.

SINCE 1891
Taylor
LAMINATED PLASTICS

TAYLOR FIBRE CO.
NORRISTOWN, PA. • LA VERNE, CALIF.

VULCANIZED FIBRE • TAYLOR INSULATION

PHENOL, SILICONE & MELAMINE LAMINATES • FABRICATED PARTS

CAN YOU SPOT THE 90¢ DIFFERENCE ?

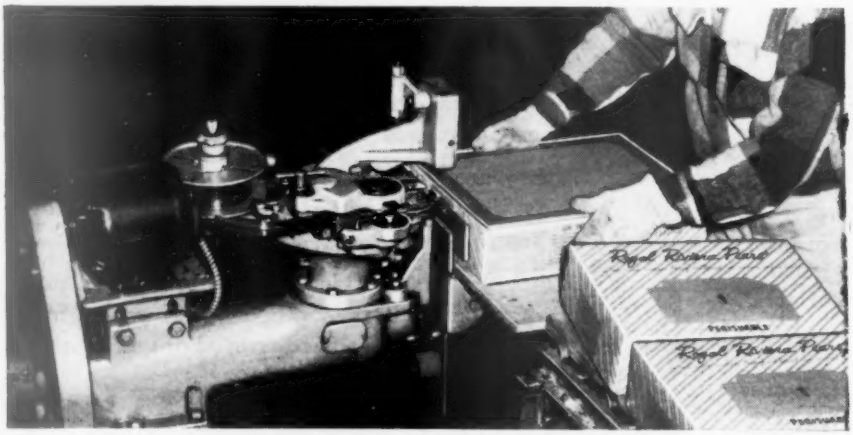


The two boxes are almost identical. One is tied with wire. The other shows how Bostitch field men can cut costs—the lid of the box is fastened to the bottom with just *four* wire staples.

By switching to Bostitch, this fruit packer was able to save 90c out of every dollar formerly spent for wire.

And that's not all. The packer further reports that his boxes look better, stack better, travel better. His shipping-room employees are a lot happier. And his customers say the boxes are easier to open and the fruit is less likely to be bruised.

Whatever business you're in, whatever your present method for closing cartons or fastening materials, you'll do well to check into the services Bostitch offers. You'll be surprised how many different fastening jobs Bostitch can help you with.



AT THE END OF THE LINE, boxes are securely fastened with Bostitch S2B wire stitchers. Bostitch makes 30 different machines for doing all kinds of shipping-room jobs.

FREE BULLETIN *describes 30 of the 800 Bostitch models used for wrapping or packaging. Just mark and mail the coupon.*

THERE'S A BOSTITCH MAN NEAR YOU— *300 field men in 123 cities in the U. S. and Canada. Bostitch service is always nearby.*

BOSTITCH, 730 Mechanic Street, Westerly, R. I.

Please send me a free copy of your bulletin on Bostitch stapling machines for shipping-room use.

I am particularly interested in a better and faster method for:

☐ Assembling cartons ☐ Sealing corrugated wrappers ☐ Covering barrels
☐ Bottoming ☐ Repairing cartons for re-use ☐ Tagging
☐ Top-sealing ☐ Bag-sealing Other _____

Name _____

Company _____

Address _____

City _____ *Zone* _____ *State* _____

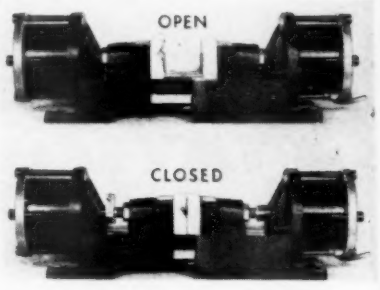
BOSTITCH® fastens it better, AND FASTER with wire

ALL TYPES OF MACHINES FOR APPLYING STAPLES
ALL TYPES OF STAPLES APPLIED BY MACHINES

(*Continued from page* 150)

mum limit elements. Two types, normal and reverse, are available and may be had in three standard ranges: .040, .020, .010. Plunjets for special ranges and closer tolerances can be supplied on special order. Sheffield says the gaging head is particularly useful for measuring flatness; for general machine shop work; in gaging wide tolerances on inside diameters exceeding 3", and on lathes and other equipment to tell when the part is reaching proper size before it is down to the finished dimension.

Vise Cuts Time and Cost of Finding Centers



A new device claimed to save time and cut the cost of finding centers on runs of material regardless of shape is offered by Black Drill Co., Inc., 1400 E. 222nd St., Cleveland, O. Called the "Centr-Finder" vise, it consists of two opposed pneumatic cylinders mounted on a cast iron base with two master jaws at the ends of the rods attached to the pistons. The jaws travel along guides and the movement of both jaws is mechanically synchronized. With the device, the center of the workpiece, regardless of diameter, provided it is within a working range of 0 to 4", is brought within plus or minus .001" of the established centerlines both horizontally and vertically. The vise requires less than two square feet of bench space.

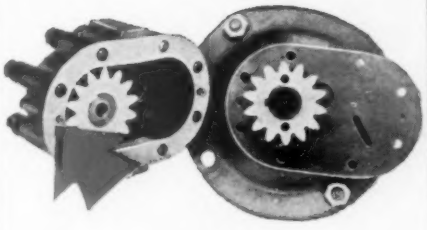
Oil Improves Cutting Action, Cuts Tool Wear

Metal cutting action can be greatly improved and tool wear thereby reduced through the use of its new wax-type cutting oil, says S. C. Johnson & Son, Inc., 1525 Howe St., Racine, Wis. The lubricant, called Wax-Cut, is designed for use in automatic screw machines, gear cutting machines, broaches, lathes, and other types of machine tools which use oil-type cutting fluids. The reduction of heat achieved

(*Please turn to page* 154)



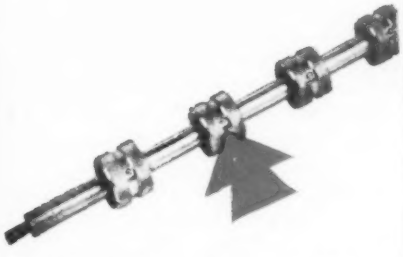
REPLACING A HUB ON A GEAR . . . Rollpin, self-retained in shaft, is simply snapped into molded slot to position sintered gear. This application, by Ditto Inc., effects major savings in assembly. Rollpin's high shear strength is particularly valuable here.



REPLACING A MACHINED PIN . . . In the lubrication pump assembly of the Cummins HR-400 diesel engine, two Rollpins are used as positioning dowels. Rollpins are self-retaining in production-drilled holes . . . quick to assemble and easy to remove.



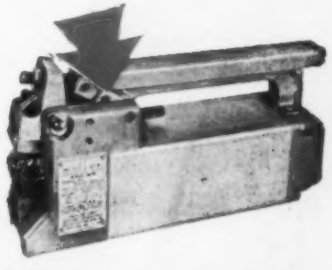
REPLACING A HEADED PIN . . . In this hinge pin application, Rollpin is simply and inexpensively driven in place, greatly reducing assembly costs. Constant spring tension holds Rollpin firmly in place . . . eliminates loosening of hinge due to wear.



REPLACING A SET SCREW . . . Paper feed rollers are quickly, economically pinned to shaft by Rollpins in this office machine made by Ditto Inc. Flush fit affords neat appearance . . . spring tension assures positive, permanent positioning of rollers.



REPLACING A RIVET . . . Rollpin serves as guide shaft for spring-loaded electrical interlock contacts. The Square D Company reports that rivet failure previously occurred at the clinched end under normal operating impact and vibration.



REPLACING A BOLT AND NUT . . . Rollpins act as fasteners and pivots for the linkages in this Miller Electric Welder. Rollpins may be used with a free fit in outer or inside members depending upon product design requirements.

6 more examples of assembly-time saving with ROLLPIN

TRADE MARK

Rollpins are slotted, tubular steel, pressed-fit pins with chamfered ends. They drive easily into holes drilled to normal tolerances, compressing as driven. Reaming, tapering, extra assembly steps are eliminated. Rollpins are *locked* in place by the constant pressure they exert against hole walls. Inserted with an automatic press or by hand, Rollpins are readily removable with a drift or pin punch—and reusable again and again.

Elastic Stop Nuts with the famous red collar are another ESNA® product



FOR DESIGN INFORMATION—fill out and mail our coupon. If your plans include applications similar to those on this page—or clevis pins, keys, taper pins or stop pins—you can't afford to be without details on how much faster and cheaper Rollpin can do the job.

Dept. R6-1015. Elastic Stop Nut Corporation of America
2330 Vauxhall Road, Union, New Jersey

Please send me the following free information on ESNA self-locking fasteners:

☐ Rollpin bulletin and sample Rollpins ☐ AN-ESNA conversion chart
☐ Elastic Stop Nut Bulletin ☐ Here is a drawing of our product. What fastener do you recommend?

Name_____ Title_____

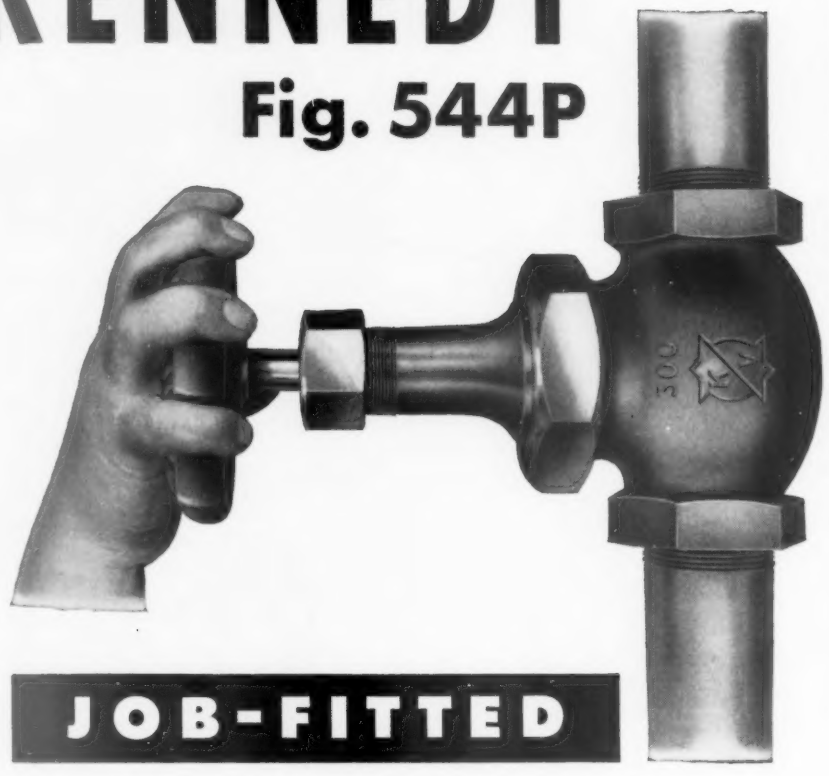
Firm_____

Street_____

City_____ Zone_____ State_____

KENNEDY

Fig. 544P



JOB-FITTED

for longer disc and seat life... where accurate control is a must

Like all valves in the complete KENNEDY line these bronze globe valves are JOB-FITTED . . . specially designed and engineered for the job they have to do!

UNION BONNET RING, heavy bronze section with extra thread engagement to assure a tight joint. Union bonnet makes a valve easy to dismantle and reassemble.

STEM, Naval Brass Rod, Acme threads, large diameter with extra thread contact . . . extremely resistant to wear.

PACKING, molded rings of graphited, wire-inserted asbestos designed for high pressure service.

PLUG TYPE DISC, nickel copper alloy, has extra wide seating surfaces for precise throttling control . . . is exceptionally resistant to scouring or wire drawing.

RENEWABLE SEAT RING, nickel copper alloy, ground to match disc in each valve to assure full bearing surfaces over entire contact area of each.

KENNEDY Fig. 544P, plug type disc, and Fig. 544, full-way disc, are designed for 300 lbs. steam, 600 lbs. WOG. Fig. 138P, plug type, and Fig. 138, full-way disc, for 200 lbs. steam, 400 lbs. WOG.

WRITE FOR BULLETIN 108

Est. 1877

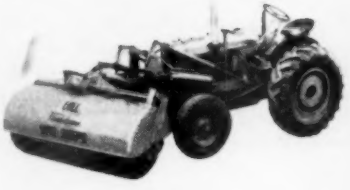
THE **KENNEDY**
VALVE MFG. CO. • ELMIRA, N.Y.

VALVES • PIPE FITTINGS • FIRE HYDRANTS

(*Continued from page* 152)

through the use of oil is said to mean less smoking and loss through burning and atomization. It will not stain non-ferrous metals nor damage machine bearings or gear mechanisms and may be used in machine tools using a universal lubricant. It is clear and odorless.

Sweeper Effective On Uneven Surfaces



An "automatic terrain compensator" is the new device that makes Lull Manufacturing Company's fluid-driven super-sweeper just as effective on rough surfaces as on smooth. The spring loaded fluid device automatically compensates for uneven ground, and maintains a constant broom-ground contact pressure at all times. More uniform and faster sweeping results, greatly increase over-all sweeping efficiency. Other features of the machine include finger-tip power hydraulic control for regulating broom angle, for determining broom rotation, for adjusting broom speed, and for adjustment of broom height. All broom settings can be changed without stopping tractor, and without leaving the tractor seat. Lull is at 314 W. 90th St., Minneapolis 20, Minn.

Flame-Retardant Plastic Laminate

Flame retardant laminated plastics are now being offered by Synthane Corp., Oaks, Pa. The increased safety provided by use of a new resin formulation is avaliable in all standard grades and forms of Synthane plastics. Incorporation of the flame-retardant feature has no detrimental effect on punching or other machining properties. Cost is only slightly over that of the standard laminates. Flame retardant properties were proved in test procedures worked out in cooperation with Underwriters Laboratories. Electrical components such as circuit breakers, and aircraft equipment where the absence of afterglow may be important are among the many fields where the material is thought to offer important advantages.



YOU COULD HANG PICTURES with a sledge hammer...

but . . . you shouldn't — nor should you use just any internal grinding wheel when you can use Bay State's . . . proven best in the field for the countless inside grinding jobs that call for speed and accuracy.

Deservedly popular, Bay State Internal Grinding Wheels are:

- **UNIFORM** — due to exacting standards of manufacture
- **TRUE-RUNNING** — because of accurate centering
- **LONG-LASTING** — because they fit-the-job, through the proper selection of grit and grade. (That's where Bay State engineering experts will really help you.)

BAY STATE'S current expansion program includes a new 250 foot kiln plus a 30% increase in plant capacity... this means better deliveries to you.

BAY STATE ®

BAY STATE ABRASIVE PRODUCTS CO.
Westboro, Mass.

Branch Offices and Warehouses —
Chicago, Cleveland, Detroit, Pittsburgh
Distributors — All Principal Cities
In Canada: Bay State Abrasive Products Co. (Canada) Ltd., Brantford, Ontario



Work EASIER—FASTER With Mall "Mighty Midget" PNEUMATIC DRILLS

Lighter — Smaller — More Powerful Than Any Similar Type Tools . . .

You can't beat the handling ease of a Mall "Midget" Pneumatic Drill . . . Weighs less than a pound in your hand — with lever or button throttle for added convenience. Attachments for wire brushing, grinding, rotary filing, sawing and sanding fit directly into chuck. Equipped with latest type "noise silencer" for quiet operation. Drills come with Kett 3-Jaw chuck spanner and open-end wrench, lubricant, and ¼" x 8' air hose.



Model PD-103L Pneumatic Drill — Weight 14 Oz.



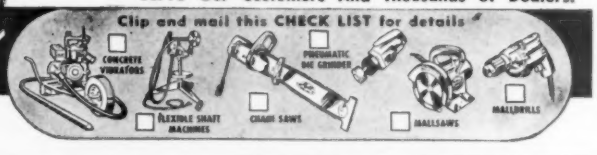
Model PD-204L ¼" Pneumatic Drill — Weight 2 Lbs.

Send for Descriptive Bulletins.

40 Factory-Owned Warehouses, Coast to Coast, To Serve Our Customers And Thousands of Dealers.

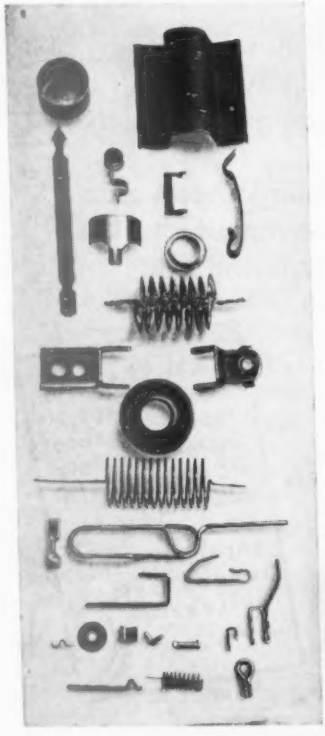
Mall TOOL COMPANY

7791 S. Chicago Avenue
Chicago 19, Illinois



Priced Right!

WIRE FORMS & Metal Stampings



High-speed, quality production with custom-made precision. Wire formed in any shape for every need.

IMMEDIATE CAPACITY FOR DEFENSE SUB-CONTRACTS

STRAIGHTENING & CUTTING
Perfect straight lengths to 12 ft.
.0015 to .125 diameter

WIRE FORMS
.0015 to .080 diameter

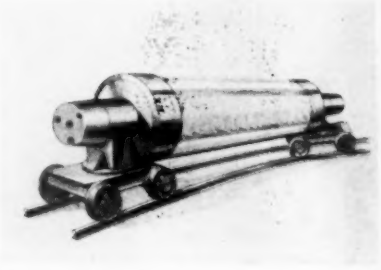
SMALL METAL STAMPINGS
.0025 to .035 thickness
.062 to 3 inches wide

Specializing in Production of Parts for Electronic and Cathode Ray Tubes

Write for illustrated folder.
Send Blueprints or Samples for Estimate.

ART WIRE and STAMPING COMPANY
BOYDEN PLACE
NEWARK 2, N. J.

Tote Trucks for Moving Big, Bulky Products



Moving calendar, embossing and other press rolls—or any heavy, bulky objects—is made a lot easier with a new materials handling product called the Epco tote truck. Each truck has a ball-bearing turntable on the top, and the wheel hubs are made with heavy duty type Timken bearings. They are used in tandem, so loads can be moved around corners or along curved trackage with ease. The pair illustrated accommodates up to 15 tons, but others can be built for even greater weight. Manufactured by Engineering Products Co., Inc., 122 S. Michigan Ave., Chicago 3, Ill.

12-Lb. Carbon Dioxide Fire Extinguisher



Randolph Laboratories, Inc., 8 E. Kinzie St., Chicago, Ill., has added a 12-lb. model, called the "12" to its line of carbon dioxide fire extinguishers. The compact unit is only 11" wide, 24" high. It has a thumb-trigger release, and a new, lightweight, 9 oz. Flexrite nozzle. Lack of valves to turn or regulate makes it easier to use, even by frightened employees. It contains 12 full pounds of non-toxic, non-damaging carbon dioxide, and is especially

(*Please turn to page* 160)

Combination *Life-Line*starter— industry's most adaptable control

EASY MODIFICATION...EASY MAINTENANCE WITH WESTINGHOUSE COMPLETE PARTS KITS

Flexibility engineered into Westinghouse Combination Life-Linestarters assures you of (A) quick modification of the basic control to changing requirements—on the job, and (B) almost instant renewal of original product performance when replacements are needed. How? With Westinghouse Parts Kits—which simplify change-overs, simplify maintenance. Packaged as complete units, they relieve stocking problems, and are available at any time. All Life-Linestarter parts are front removable.

1 Built-in Pushbutton Kit—for local operation, easily snapped over magnet assembly; kit includes new name plate.

2 Built-in, Three-Position ("Hand", "Off", "Auto") Selector Switch—gives low voltage release on float and pressure switches; snaps over magnet assembly; new name plate and screws furnished.

3 Heater—easily changed for different motor horsepower or full-load current; installed with only two screws.

4 Renewal Parts Kit—includes complete set of contacts and springs; combinations of two basic kits will cover any number of starter poles.

5 Coil—replaced simply by removing magnet assembly.

6 Second (Inboard) Interlock Kit—electrically interlocks starter in complex control linkages to assure correct operational sequence.

7 Fuse Block—provides short circuit protection for control circuit; installed on secondary side of Transformer (within the enclosure, mounting pads are predrilled and tapped for easy transformer and fuse block installation).

8 Outboard Interlock Kit—installed on either right or left-hand side; provides a third or fourth interlock. Contact action can be supplied "normally open" or "normally closed"; can easily be changed in the field.

9 Third Overload Relay—can be installed on mounting bracket at bottom of starter.

10 Control Circuit Transformer—provides lower control circuit voltages.

32 warehouses, located conveniently throughout the country, offer you fast action—simply call your Westinghouse Representative, or write for B-4677 "Tomorrow's Starter Today", Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa. J-30112

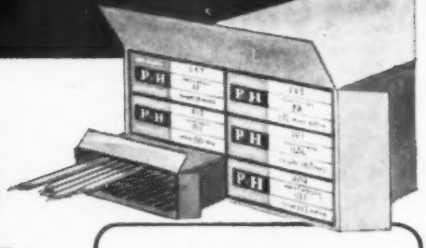
YOU CAN BE SURE...IF IT'S Westinghouse

*Life-Line*starter

THE P&H MAINTENANCE PACK PUTS THE RIGHT ROD FOR THE JOB AT YOUR FINGERTIPS!



Handy, small-package assortment of electrodes for repair and maintenance welding



NEW P&H Maintenance Pack

You no longer have to buy seldom-used rods in quantities larger than you need. For now, with the new P&H Maintenance Pack, you can keep some of each type on hand economically — and get replacement packages as you need them.

There are five different kinds of electrodes included in the P&H Maintenance Pack. It equips you to do all kinds of repair and maintenance jobs — and get fast, easy, sound welds. All rods are packaged to stay dry — and are clearly identified to make proper selection easy.

Be ready to meet every emergency. Save time, trouble, and money. Order a P&H Maintenance Pack from your P&H representative or local distributor. Mail coupon for name of one nearest you, and for further information.

$13.50

for complete assortment of five different kinds of electrodes (Approximately 27 lbs.)

1. AC-3, 1/8", 5/32", 3/16" — For all position welding of mild steels and sheet metal. AC or DC.
2. AC-1, 5/32" — For mild steels. AC or DC.
3. 70LA2, 5/32" — For high-carbon, alloy, high-sulfur, free-machining, cold-rolled, and other hard-to-weld steels. Ideal for steel casting repairs. AC or DC.
4. Harstain, 1/8" — For spring steels and stainless steels of all kinds. AC or DC.
5. Nicast, 1/8" — For machinable welds on cast iron. Nicast welds are strong and non-porous.

P&H
WELDING DIVISION
HARNISCHFEGER CORPORATION
4577 WEST NATIONAL AVENUE
MILWAUKEE 14, WISCONSIN

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES

Tear out coupon and mail today!

HARNISCHFEGER CORPORATION
4577 W. National Ave., Milwaukee 46, Wis.
Send me further information on new P&H Maintenance Pack and name of my nearest dealer.

Name .....
Position .....
Company .....
Address .....
City.....(...) State.....

(*Continued from page* 156)

adaptable to flammable liquid and electrical fires. The unit is approved by Underwriters Laboratories, and is said to have stopped a two-gallon, sixteen-foot gasoline fire in only eight seconds.

Rolls External Threads At Very High Rate



D. H. Prutton Machinery Co., 5295 W. 130th St., Cleveland, O., reports an unprecedented 19,440 pieces-per-hour rate at which external, class 3 fit threads are rolled in ½" — 13 hollow set screws of S.A.E. 1035 steel on this Model 300 Rollmaster machine. The "planetary die" principle is said to radically reduce thread rolling pressure by distributing it evenly over a full 30" of die "length." Thus the danger of distorting or crushing hollow parts due to excessive pressure from "shorter" dies is eliminated. The machine is said to perform equally well on either hollow or solid work in a wide variety of metals ranging from non-ferrous to hardened and stainless steels.

New Type Thin Wall Nylon Lined Bearings

Thomson Industries, Inc., Manhasset, N. Y., says it has overcome some of the important limitations of molded or machined nylon bearings with its new Standard Thinwall Nylined bearings. Nylined bearings are claimed to solve the problems caused by the clearances required to allow for expansion due to temperture and moisture absorption, as well as distortion due to internal stresses. Thomson points out also that plain nylon bearings cannot be press fitted, and usually use more nylon for structural reasons than is necessary for a bearing surface. The

(*Please turn to page* 164)

DESTACO

VOLUME *precision stampings . .*



CUT COSTS — SPEED PRODUCTION

De-Sta-Co's Multi-Stampings are small intricate precision parts produced from coil stock at a single machine stroke . . . Full automatic operation assures *maximum uniform production* with a *minimum of labor* (a big item where large scale production is involved).

Such operations as piercing, forming, swaging, embossing, twisting, curling and reforming from coiled stock are completely finished. This is especially advantageous where forming around a mandrel is required. Typical parts, economically produced are: clips, contacts, bearings, terminals, connectors, rotors and tubular shaped parts of light stock.

Other equipment enables us to handle material up to ⅜" on press beds 48" x 72" at pressures of 250 tons. Drawing 4" deep—Coining to 400 tons. We specialize in Swedish steel refrigerator flapper valves.

Modern material control methods are used to maintain Low-Cost volume production. We invite your inquiry for quotations on parts to your specifications.

Write for a copy of our new Multi-Stamping Brochure which illustrates our plant facilities in detail.



MODEL 650 "DE-STA-CO" HEAVY DUTY PLUNGER CLAMP

One of six styles and sizes of fast acting, positive locking plunger type clamps for "push-pull" production work-holding jobs where considerable pressure is required. Powerful toggle action and rugged construction offer up to 4000 lbs. capacity holding pressure. Send for 32-page catalog of "DE-STA-CO" Toggle Clamps illustrating entire line of more than 40 models.

DESTACO **DETROIT STAMPING COMPANY**

408 MIDLAND AVENUE • DETROIT 3, MICHIGAN

☐ Please quote on Multi-Stamping production of enclosed part and specifications.

☐ Please send me a copy of the New Multi-Stamping Brochure and the name of your De-Sta-Co representative.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

NO "FIRE-DRILL" NEEDED with THIS EXTINGUISHER



It's a Randolph!

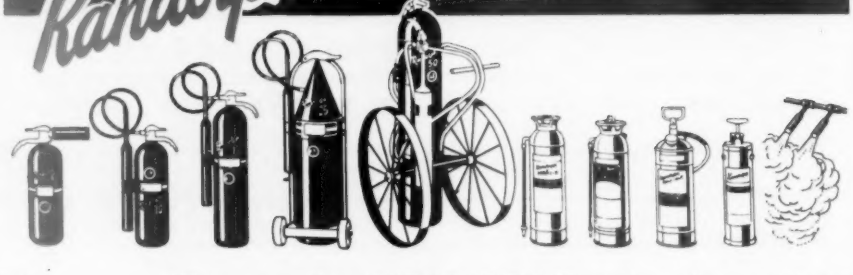
One glance tells you just how the Randolph operates—no instructions, no explanations necessary! That's why *anybody* can get a Randolph into action fast! No valves to turn, no nozzles to adjust; just point and press your thumb and Randolph's cloud of snowy CO_2 kills fire instantly!

Non-damaging Randolph CO_2 evaporates without a trace, is non-toxic, won't conduct electricity, deteriorate or freeze. And *all* Randolph Models are Underwriters' Approved.

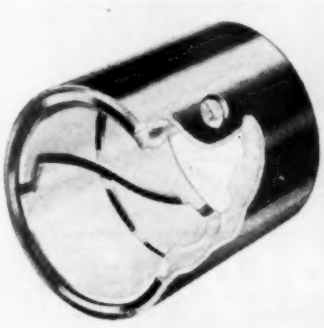
A COMPLETE LINE OF EXTINGUISHERS AND AUTOMATIC SYSTEMS

Learn how Randolph gives your plant panic-proof, split-second protection against flammable liquid, electrical and other hard-to-handle fires! Write Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Illinois.

Randolph SIMPLIFIED FIRE EQUIPMENT



(*Continued from page* 160)



new bearings consist of a thin, drawn steel outer sleeve and a free floating liner of Du Pont FM 10001 nylon. They resist poundout, decrease friction, permit dry operation, damp mechanical vibration and minimize abrasion failures. They can be operated submerged in most liquids. They are offered in ten sizes ranging from ¼" to 1¼" I.D.

Step Ladder Rolls to Point of Service



A good step ladder is an invaluable tool in any stock room, warehouse, etc. and so much the better when it can be moved easily. The Roll-Along safety ladder, above, can be easily moved in any direction on its 3" ball-bearing, rubber-tired swivel casters, which are fitted to the back standards. The front standards are equipped with steel ferrule type safety shoes with rubber suction grip treads which are renewable. When the ladder is occupied, the weight of the workman holds it stationary. A wide top shelf will hold tools, boxes, etc. The ladder has an auxiliary platform which gives 9½" additional height, and folds back into main platform when not in use. Available in 3' 4½' and 6' sizes (from floor to platform) from Dayton Safety Ladder Co., Dept. 17, 2339 Gilbert Ave., Cincinnati, O.

and precise speed control

This sturdy, versatile DRIVE MOTOR *meets all your requirements for*

- ✓ UNLIMITED SPEED CHANGES
- ✓ CONTROLLED ACCELERATION AND DECELERATION
- ✓ JOGGING, INCHING, CREEPING
- ✓ SMOOTH STARTING, QUICK STOPPING

Early Reliance developments in drive motors gave industry wider ranges o speed adjustments than any motors previously available. And Reliance ha specialized ever since in drive motors combining heavy duty construction fo the toughest power jobs with precise speed control to meet your most exac ing requirements. Use Reliance Type 'T' Heavy Duty Drive Motors on th most grueling applications and your experience will reveal why long-tim users have called them "*The Toughest Motors Ever Built*". Get dependabl motor response to all-electric control in a Reliance-engineered driv and you have the means of achieving and maintaining maximu production from any machine.



WRITE for D-c. Motor Bulletin C-2001 and Bulletin D-2311 which highlights the role of Reliance adjustable-speed drive motors in single and multi-motor drive systems.

HOW RELIANCE ENGINEERING adapts the motor to your specific power needs...

Reliance adjustable-speed drive motors are engineered to respond i stantly and accurately to the signals of associated controls and regulato in any motor-drive system. Co-ordinating mechanical design, horsepow and speed range of the motor with other components in a drive is th specialized job of Reliance Application Engineers. Their applicatio experience and practical production knowledge give you whatev operating flexibility is required to produce more goods at less co

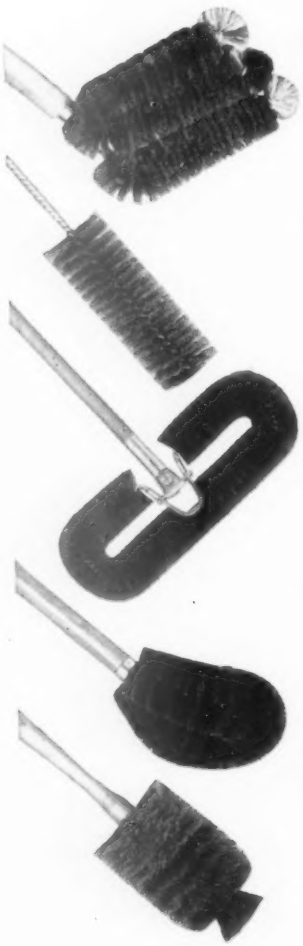
Sales Offices in Principal Cities

RELIANCE ELECTRIC AND ENGINEERING CO.

1056 Ivanhoe Road, Cleveland 10, Ohio • Canadian Division: Welland, Ontario

DO A GOOD JOB BETTER

with Practical Fuller Twisted-in-Wire Brushes for Special Purposes



VENETIAN BLIND BRUSH

Makes a difficult job easy. Cleans 2 slats at a time. Soft hair will not scratch. 20" overall, 6½" brush part, 1¾" diameter each brush prong.

RADIATOR BRUSH

Ideal for cleaning radiators, registers, bedsprings, and other narrow spaces where an all-round brushing surface is needed. 23" overall, 6" brush part, 2¼" diameter.

WALL BRUSH

Use both sides. Semi-reversible frame. Filled with soft hair for use on any type wall. Cleaning surface 17" x 6¼".

TOILET BRUSH

Designed to clean under the rim. Densely-filled, non-absorbent material. Will not retain odors. No exposed metal to mar or chip. In three sizes.

TUMBLER BRUSH

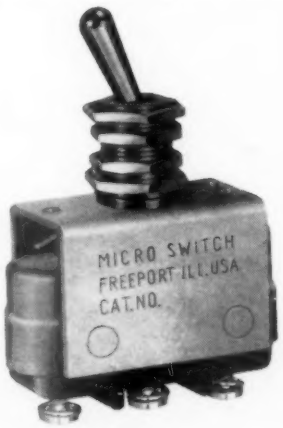
Black bristle mixture on end and stiff black hair on sides. Large end tuft for cleaning bottom of tumbler or bottle. 14" overall, 6¼" brush part, 2⅞" diameter.

We also make a long line of other special purpose twisted-in-wire brushes for specific industries or specific institutional needs. For complete information write to . . .

3554 MAIN STREET — INDUSTRIAL Fuller BRUSH CO. DIVISION — HARTFORD 2, CONN.

Fullergript, Wet and Dry Mops, Brooms, Floor and Special Brushes.

Hermetically Sealed Precision Toggle Switch



No matter what the environment, it will not affect the performance of this hermetically sealed precision toggle switch, says Micro division, Minneapolis-Honeywell Regulator Co., Freeport, Ill. The switch will deliver its full electrical rating and operating characteristics without regard to changes in atmospheric pressure or temperature, and will not be affected by the presence of corrosive atmosphere, dust, dirt, oil or water. Its vapor-proof character prevents condensation on switch contacts. Tests indicate the switch has a life expectancy far greater than the 25,000 operations normally anticipated for hand-operated switches. Tentative electrical rating is: 5 amperes motor load 30 volts d-c; 10 amperes inductive load 30 volts d-c; 25 amperes resistive load 30 volts d-c; 1.0 ampere a-c for any type of load, 125 volts a-c.

New Heavy-Duty Plastic Electrical Tape

Van Cleef Bros., Inc., 7800 Woodlawn Ave., Chicago 19, Ill., has brought out a new plastic electrical tape specially suited for heavy duty work. The tape is .010" thick, has great strength and flexibility and is resistant to weather, oils, acids, alkalies and corrosive chemicals. Dielectric strength averages 10,000 volts. Because of its ability to stretch, it conforms well to irregular surfaces. Van Cleef says the tape is particularly adapted to winding heavy cables and electrical harnesses, and for use with power driven taping machines. It is also used in plant methods work and maintenance operations.

SEE CLASSIFIED SECTION
PAGE 410

Here at Sterling Bolt Co., a single, integrated DEPENDABLE source can supply you with more than **200,000** stock and standard sizes in Bolts, Nuts, Screws and Washers for your specific needs.

For more than 35 years Sterling Bolt has been a prime supplier of metal fastenings to America's best-known companies—because Sterling facilities combine both warehouse and mill, giving you advantages of **PROMPT SERVICE** and **COMPETITIVE DISCOUNTS.**





try these for SIZE



THE INDUSTRIES WE SERVE—AND SERVE WELL!

Refrigeration • Pumps • Cranes • Elevators • Tractors • Trailers • Conveyors • Mining Equipment • Blower & Fan Equipment • Diesel Engines • Bodies—Motor Truck & Trailer • Electrical Manufacturing • Air Conditioning • Material Handling Equipment • Machinery Manufacturing • Radio & Television • and many others—

Interested in Cutting Costs?

No need to count on expensive, time-consuming specials when Sterling Bolt Standardized Bolts, Nuts and Screws can fit your job—200,000 to one!

Send your inquiry or order TODAY—to the

STERLING BOLT co.

369 West Erie Street, Chicago 10, Ill.
Telephone: SUperior 7-3000 • Teletype:CG 488
Offices: Cincinnati, Indianapolis, Milwaukee, St. Louis

LENOX
QUALITY TOOLS
High Speed
HACK SAWS
BAND SAWS
GROUND FLAT STOCK
HOLE SAWS
QUALITY LENOX TOOLS
The Tools in the Plaid Box
AMERICAN SAW & MFG. COMPANY
SPRINGFIELD, MASS.

Four Ranges In Single Comparator Gage



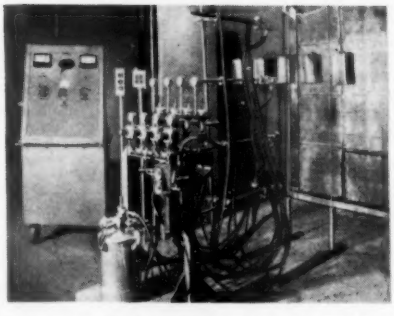
Each in DoALL Company's new line of electrical comparator gages actually provides four gaging ranges and thus effectively takes the place of four regular single-range comparators. Any of the four ranges is selected with a flick of a switch, so that parts can be checked with the range best suited to their tolerance. The comparators utilize the electromagnetic principle of magnifying the movement of the spindle tip. Vacuum tubes or mechanical linkages are not employed, so that longer instrument life can be expected. Standard models in the new series have a gaging capacity of 6½" maximum height and 4" depth. There are a number of comparator models available, each covering a specific group of four gaging ranges.

Valve Shield Protects Against Acid Spray



Safety engineers at a Du Pont Chemical plant developed a flexible valve shield a few years ago as protection against acids and other hazards if the valve stem packing failed. When satisfied with its merits, they turned the idea over to Industrial Products Company, which is now producing the shields commercially. The shield, made of neoprene synthetic rubber, cups the stem and the packing gland and prevents acid from spraying on the operator or anyone working close by. It is flexible and can be turned back to allow inspection of the valve or tightening of the packing gland nuts. Neoprene construction insures long life. The shields are made in three sizes, accommodating valve sizes from ¾" to 4"; shields for larger valves are contemplated if demand warrants. Industrial Products Co. is at 2820 N. Fourth St., Philadelphia, Pa.

Low-Cost Electrostatic Paint Spray Process



Staticote Systems, Inc., 13783 S. Leyden Ave., Chicago, Ill., is a new firm introducing a low-cost electrostatic paint spray process designed for the painting of various metals. The Staticote system is said to save labor and materials, and assure a more uniform overall coat, without runs or dripping. An engineered system of operation is worked out for each individual user to give him the most advantageous method and utmost economy. A full year's guarantee against mechanical defects is given with each installation. A typical installation is illustrated.

Also Noted . . .

A rugged **industrial fan** built with either an air handling, a materials handling, or a long shavings wheel is made by Westinghouse Electric Corp., Sturtevant Division, 200 Readville St., Hyde Park 36, Boston, Mass. It is made in 11 sizes with capacities ranging from 670 to 44,000 cfm and pressures up to 16 in. water gauge.

Tufbak Speed-wet Durite is a new **waterproof sandpaper** for industrial users made by Behr-Manning Corporation, Troy, N. Y. Its unusual combination of toughness and flexibility is said to increase durability, mileage, "hand", and re-

(*Please turn to page* 174)

FLAT SPRING STEEL



You can get it now! . . . and we believe it's the best spring steel we've ever made

OUR NEW specialty spring steel plant is in full swing. Equipped with today's most modern, precision machines, we believe we're producing flat spring steel that gives more for your money than ever before.

This new spring steel is tops in uniformity. It saves you preparation time . . . cuts down machine stoppages . . . gives you the greatest number of perfect parts from every foot and pound of steel.

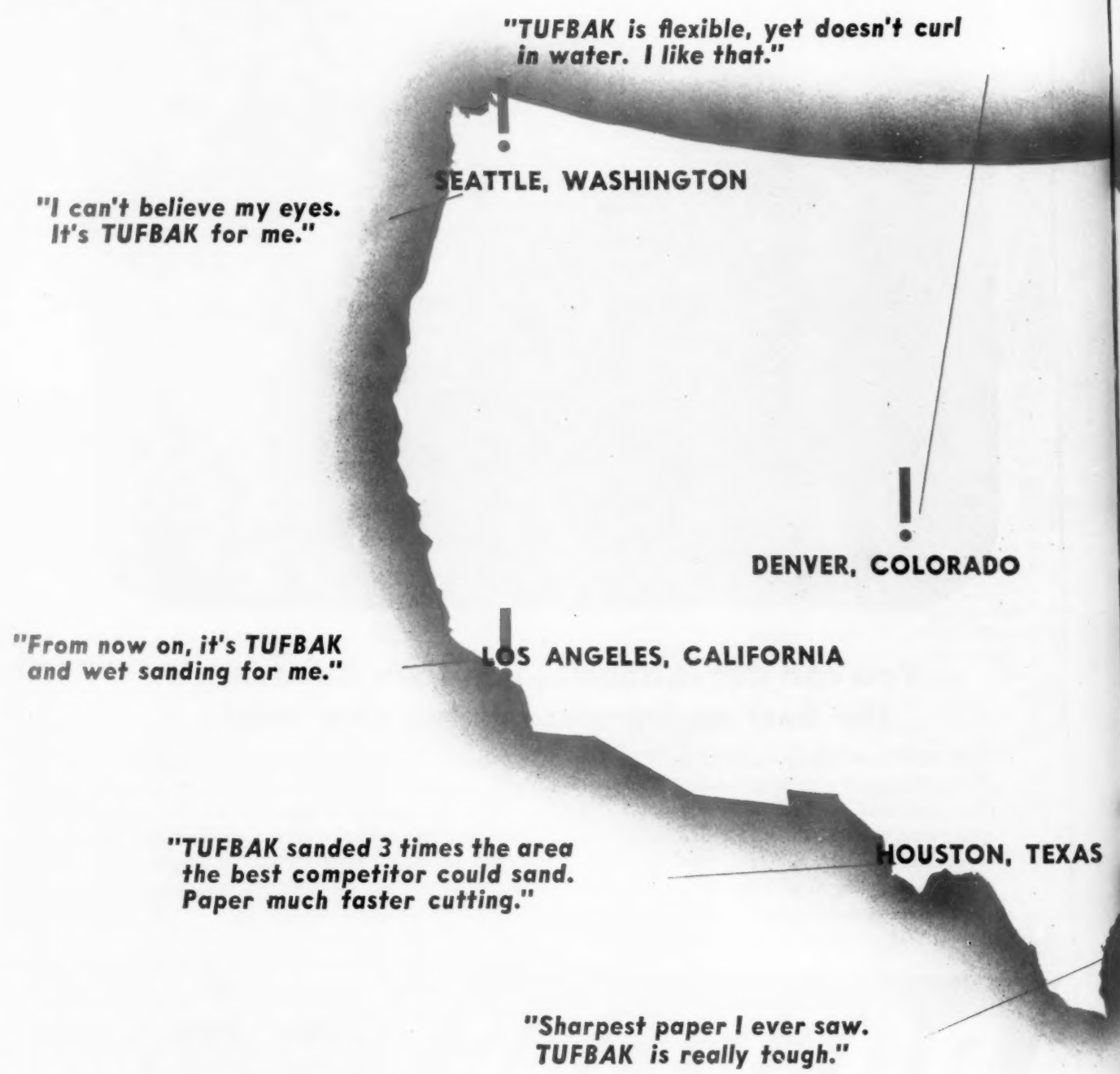
With our greatly increased capacity we can make prompt deliveries on flat spring steel. And if you need high carbon round or shaped wire, ask what we can do. John A. Roebling's Sons Company, Trenton 2, N. J.

ROEBLING

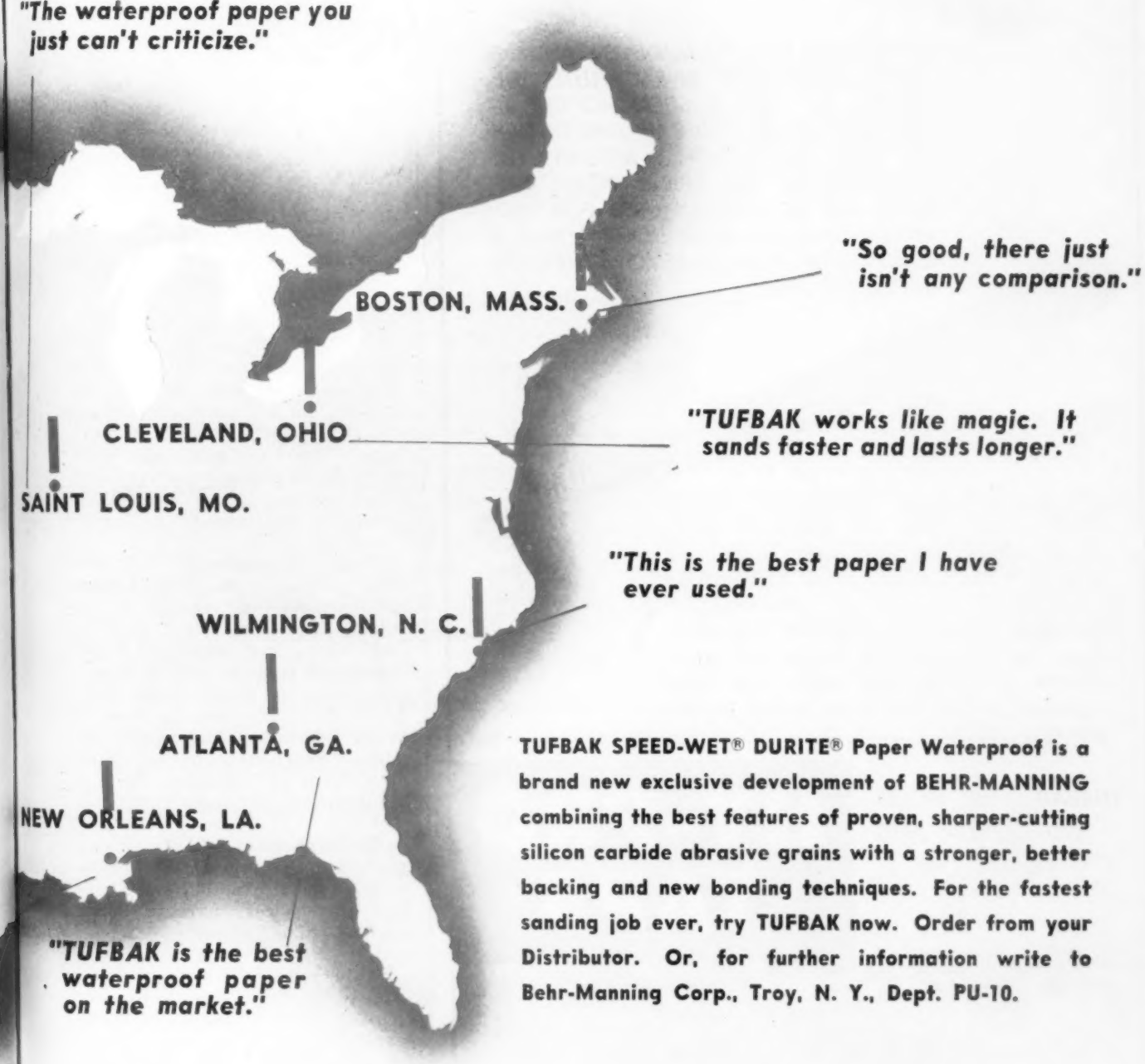
ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, N. J.

Coast-to-Coast ACC

MOST REVOLUTIONARY WET SA



CLAIM for TUFBAK
SANDING PAPER IN YEARS



TUFBAK SPEED-WET® DURITE® Paper Waterproof is a brand new exclusive development of BEHR-MANNING combining the best features of proven, sharper-cutting silicon carbide abrasive grains with a stronger, better backing and new bonding techniques. For the fastest sanding job ever, try TUFBAK now. Order from your Distributor. Or, for further information write to Behr-Manning Corp., Troy, N. Y., Dept. PU-10.

BEHR-MANNING ®

BEHR-MANNING CORPORATION
division of NORTON Company

- ▲ COATED ABRASIVES
- ▲ SHARPENING STONES
- ▲ PRESSURE-SENSITIVE TAPES

USE THE RIGHT TAP

(HOW TO DO MORE TAPPING WITH FEWER TAPS)



SPIRAL FLUTE TAPS ARE MADE AS STANDARD WITH RIGHT-HAND SPIRAL FLUTES DESIGNED TO GIVE A SHEARING CUT IN ORDER TO CARRY CHIPS UP AND OUT OF THE HOLE. THIS ACTION IS ACTUALLY THE OPPOSITE OF THE SPIRAL POINT TAP. THESE ARE COMMONLY USED FOR DEEP HOLE TAPPING IN BLIND HOLES WHERE IT IS ADVANTAGEOUS TO REMOVE THE CHIPS FROM THE HOLE.



SPIRAL POINT TAPS, COMMONLY CALLED "GUN POINT" TAPS, ARE MADE TO DRIVE CHIPS AHEAD OF THE TAP. THESE ARE USED FOR PRODUCING MOST OPEN HOLE THREADS. THIS TAP IS INHERENTLY STRONGER THAN THE REGULAR STRAIGHT-FLUTE TAP BECAUSE THE FLUTES ARE SHALLOWER AND ARE NOT USED FOR CHIP CLEARANCE. CUTTING IS ALL DONE IN THE SPIRAL POINT.

THREAD MORE HOLES WITH FEWER TAPS INSIST ON...

HY-PRO TAPS



HY-PRO TOOL COMPANY

NEW BEDFORD, MASS., U. S. A.

(*Continued from page* 170)

sistance to skidding and peeling of grit. These advantages are obtained whether the sheet is soaked in the usual liquids for a few minutes or for hours.

Composition 95, designed primarily as an **electrolytic conditioner** for zinc base die castings in preparation for plating, is announced by Oakite Products, Inc., 154 Rector St., New York 6, N. Y. Its use is said to result in fewer rejects, brighter plating, and no blackening during anodic cleaning.

An **aluminum alloy**—Alcoa C57S—that takes an unusually brilliant Alumilite finish holds great promise, particularly in the field of automobile trim, says Aluminum Co. of America, Pittsburgh 19, Pa. With an Alumilite coating it could be used as an attractive, economical and long-lasting replacement for chromium plating and stainless steel, according to Alcoa.

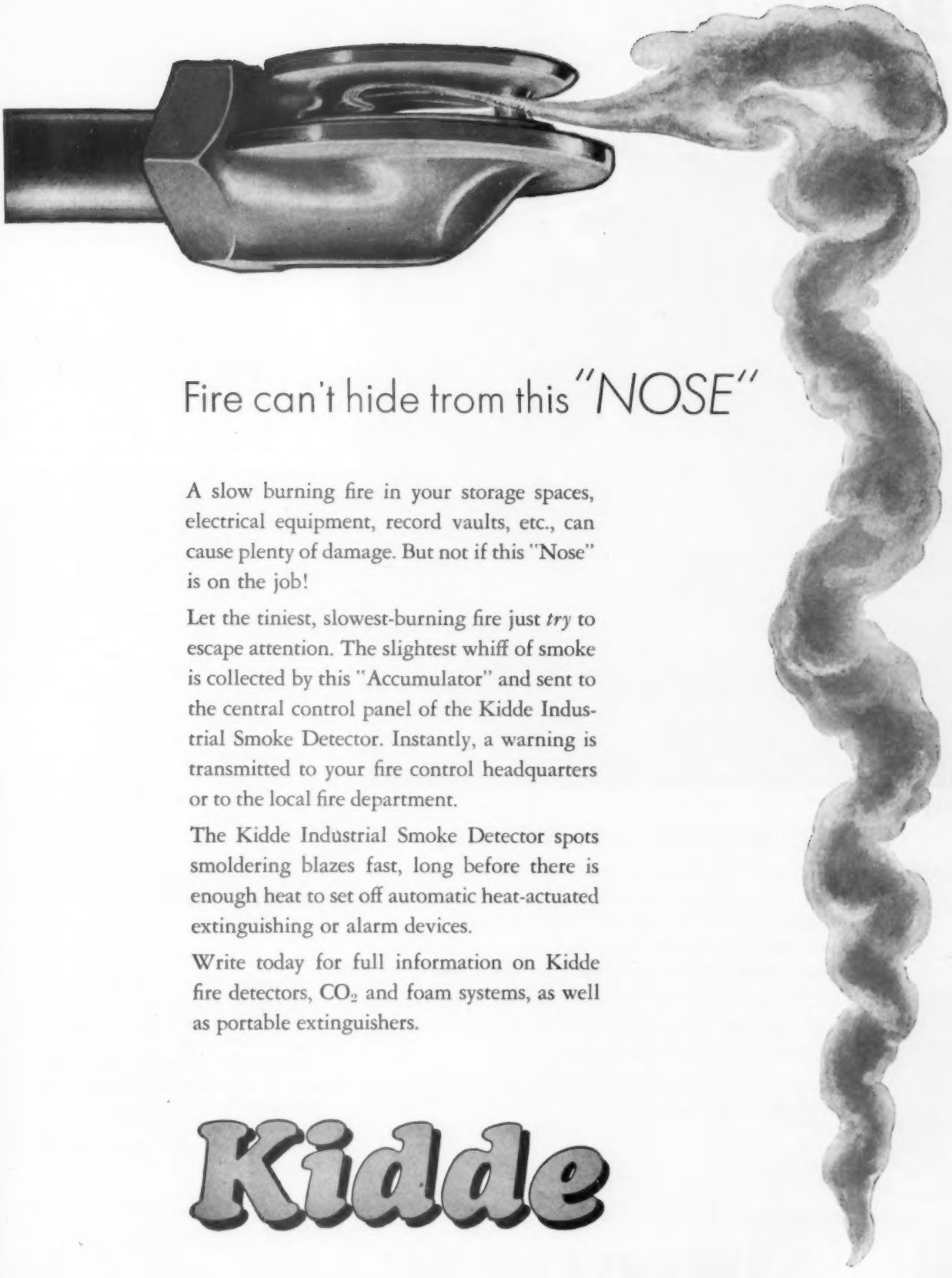
Linde Air Products Co., 30 E. 42nd St., New York 17, N. Y., has developed a new Prest-O-Lite **acetylene regulator** with ample capacity for the most efficient use of any air-acetylene torch or appliance. Once set, it automatically delivers gas at precisely correct working pressure. It is designed for small tank apparatus.

Switchmats—extended area **electrical switches in the form of sheets** or thin mats—are available in any size or shape from 2″ x 2″ to 36″ x 144″. They are actuated by predetermined pressure ranging from a few ounces to several tons. Only 3/16″ thick, they can be used on floors, platforms, stair treads, etc. without obstructing traffic. Made by the Recora Company, 7419 S. Western Ave., Chicago 36, Ill.

An inexpensive adapter is now available to turn the DeWalt multipurpose radial arm "Power Shop" into an efficient, accurate **boring machine**. The adapter is tapped with a 5/8″ hole to screw directly onto the motor arbor, and accommodates boring bits with 1/2″ shanks. DeWalt, Inc. is at Lancaster, Pa.

Chippewa Paper Products Co., Inc. has introduced a new snow-white **corrugated gift carton** for manufacturers who want to prepackage gift items for retail distribution. The super-rigid cartons are made of double-face corrugated.

(*Please turn to page* 176)



Fire can't hide from this "NOSE"

A slow burning fire in your storage spaces, electrical equipment, record vaults, etc., can cause plenty of damage. But not if this "Nose" is on the job!

Let the tiniest, slowest-burning fire just *try* to escape attention. The slightest whiff of smoke is collected by this "Accumulator" and sent to the central control panel of the Kidde Industrial Smoke Detector. Instantly, a warning is transmitted to your fire control headquarters or to the local fire department.

The Kidde Industrial Smoke Detector spots smoldering blazes fast, long before there is enough heat to set off automatic heat-actuated extinguishing or alarm devices.

Write today for full information on Kidde fire detectors, CO_2 and foam systems, as well as portable extinguishers.

Kidde

Walter Kidde & Company, Inc., 10[4]~ Main St., Belleville 9, N. J.
Walter Kidde & Company of Canada, Ltd., Montreal, P. Q.

a BILLINGS will do it better!



it pays to use

BILLINGS WRENCHES and SHOP TOOLS

because Mechanics and production men like Billings quality and high standards of accuracy. They can depend on Billings tools to do the job. Billings tools—designed and produced by drop forging specialists—save time and money because they last longer. Billings Industrial Distributors maintain complete stocks of Billings Wrenches and Shop Tools to fill a wide variety of demands.

Buy 'em through your Billings Industrial Distributor!





BILLINGS WRENCHES & SHOP TOOLS

INDUSTRIAL FORGINGS SINCE 1869

THE BILLINGS & SPENCER CO., HARTFORD 1, CONN., U.S.A.

(*Continued from page* 174)

They are available in any size, plain, embossed or printed. Chippewa is at 2425 S. Rockwell St., Chicago, Ill.

Mehl Manufacturing Co., 2057 Reading Rd., Cincinnati, O., has announced See-Safe **plastic premiums** for every purpose and every price, as self-liquidators or give-aways. A few of the many items are unbreakable refrigerator boxes, storage and travel bags, all purpose covers, etc. Advertising messages can be imprinted in colors on many of the items.

An **electric deodorizer** no bigger than a walnut has been introduced by Better Life Products, 505 Dept. M., Mason Building, Fresno, Calif. It is said to quickly dispel unpleasant odors from paints, tobacco, foods, etc. It can be obtained with special medicated tablets for treatment of allergies, and colds.

Lufkin Rule Company's new Royal Ni-Clad **steel tape** is described as priced lower than any other steel tape on the market, yet featuring dependable quality throughout. The figures and gradations are an integral part of the steel and will not wear off. The nickel-plated surface makes the line rust and corrosion resistant. Lufkin is at Saginaw, Mich.

A **fireproof drapery** material made of synthetic fibers and having the appearance, feel and draping qualities of wool has been introduced by Edwin Raphael Co., Inc., 118 W. Ohio St., Chicago 10, Ill. No treatment is required, and there is nothing in the material to crystallize, flake off, evaporate or wash out.

Duncan-West Corp., 624 S. Michigan Ave., Chicago 5, Ill., is marketing a new **paint and enamel deodorant** called Mask. A few drops of the fluid mixed in the paint are said to eliminate all offensive odors, and permit a freshly painted room to be reoccupied in less than three hours—often even before the paint is dry.

Derusto, a **protective coating** that prevents and stops rust, now comes in aluminum finish suitable for brushing, spraying or dipping. Copies of reports on tests of the coating are available from Master Bronze Powder Co., Box X, Hammond, Ind.



Stop bothersome blink-blink-blink

WITH WATCH DOG NO-BLINK FLUORESCENT STARTERS



- Watch Dog* starters *stop blinking* by automatically turning off a failing fluorescent lamp.
- Watch Dog starters *keep the lamp off* until the red reset button is pushed when new lamp is installed. No recurring blinking every time lights are turned on.
- Watch Dog no-blink starters *outlast* ordinary starters by as much as 10 to 1. With Watch Dog starters, ballasts last longer, too.

*Registered Trade-mark General Electric Company

You can cut starter replacement costs—cut ballast replacement costs—and end the distracting blink of worn-out fluorescent lamps—by seeing that only General Electric Watch Dog no-blink starters are used in *all* your fluorescent lighting fixtures.

Make sure that Watch Dog starters are ordered for your stocks—insist on them, too, when you are buying new fixtures. Over 40 million sold to date. Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

You can put your confidence in—

GENERAL ELECTRIC

For all replacement needs —use the famous Watch Dog no-blink starter with the red reset button.





And here is the tag to look for when you buy fluorescent fixtures. It is your guarantee that the fixture has been equipped with G-E Watch Dog no-blink starters.

MINNEAPOLIS
Sept. 29, through Oct. 1.

MILWAUKEE
Oct. 7, through Oct. 10.

ST. LOUIS
Sept. 23, through Sept. 26.

BUFFALO
Oct. 29, through Oct. 31.

NEW HAVEN
Nov. 11, through Nov. 13.

BALTIMORE
Nov. 18, through Nov. 20.

NEWARK
Nov. 4, through Nov. 7.

CINCINNATI
Oct. 21, through Oct. 23.

WINSTON-SALEM
Dec. 9, through Dec. 11.

Coming to help you

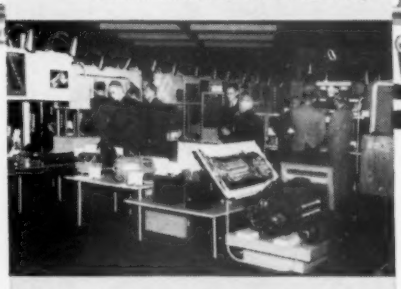
solve problems in design and production!



"BRINGING the mountain to Mohamet might best describe Dow Corning Corp.'s traveling exhibit . . . Free standing panels . . . separate the exhibit into nine bays, each emphasizing a property of silicones and showing where that property brings a benefit to an actual end product or operating unit . . ."
INDUSTRIAL MARKETING (June 1952)



"NEXT TO THE GREATEST SHOW ON EARTH . . . We could go on . . . reciting the fantastic properties of Silicones, but just as breathtaking as the materials were the display techniques used to demonstrate them . . ."
CIRCUIT RIDER (Vol. 6, No. 2, published by Electrical Construction and Maintenance)



". . . Heat Stability Plus: Visitors . . . see, among other demonstrations, how Silastic (Dow Corning's silicone rubber) remains soft and flexible at temperatures far above the limits of organic rubber . . ."
CHEMICAL WEEK (Jan. 26, 1952)



"IF YOU HAVEN'T already seen it, don't miss it when it comes around . . ."
POWER ENGINEERING (May 1952)



DOW CORNING SILICONES . . . are no longer a mystery or a "future possibility" to the 17,000 executives and engineers, representing more than 4600 plants, who have already seen the Dow Corning Silicone Exposition.*

They learned that silicones are fluids and resins that keep clothes and shoes and brick walls dry in the rain. They're fluids that polish without rubbing.

They're rubber that won't melt on hot aircraft engine cylinders or freeze on switches that operate bomb bay doors at 100° below zero.

They're electrical insulating resins and varnishes that double the power of electric motors, or multiply by 10 the life of electric machines.

They're paints that protect metal at 1000°F. They're foam killers and release agents. They're a whole family of new engineering materials that can help you to improve your product or to cut production costs.

*In Boston • Chicago • Cleveland • Dayton Detroit • Fort Worth • Houston Indianapolis • Los Angeles • New York Philadelphia • Pittsburgh • Seattle Washington, D.C. • or Wichita.

DON'T MISS IT

MAIL THIS COUPON TODAY

Dow Corning Corporation, Dept. BC-22
Midland, Michigan

Kindly include me among your guests at the private showing of the Dow Corning Silicone Exposition in

- ☐ St. Louis
- ☐ Minneapolis
- ☐ Milwaukee
- ☐ Cincinnati
- ☐ Buffalo
- ☐ Newark
- ☐ New Haven
- ☐ Baltimore
- ☐ Winston-Salem

NAME _____

ADDRESS _____

CITY _____ ZONE ____ STATE ____

Atlanta
Chicago
Cleveland
DOW CORNING
Dallas
Los Angeles
New York
Washington D. C.

DOW CORNING SILICONES **CORPORATION**
MIDLAND, MICHIGAN

CANADA: Fiberglas Canada Ltd., 1200 Bay St., Toronto, Ontario
ENGLAND: Midland Silicones Ltd., 49 Park Lane, London, W.1

Office Equipment and Supplies section of PURCHASING Magazine

OCTOBER, 1952



A magnificent wall-wide mural dominates the reception room in offices of new plant of Benjamin Harris & Company, Chicago. The mural tells the uses of copper, brass and bronze in the United States for the past century and a half.

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION
205 EAST 42ND STREET, NEW YORK 17, N. Y.

Traveling Requisition-Permanent Inventory Card System Adopted at Timken Plant

PAPER procedures for stores items records and for ordering, used by the Stores Division and Purchasing Department of the Timken Roller Bearing Company, Canton, Ohio, involved among other things a duplication of records, extra clerical work, and delays. A study of the overall process resulted in the adoption of a new card file system, known as the "card index" system, for ordering, recording and inventory control. The new system, though not yet in full operation due to the large number of stores items involved, is proving quite efficient in stores acquisition of stock materials ordered through the Purchasing Department.

The "card index" system is a simple one. It calls for the use of two cards for each item carried in stock. One of these is an Inventory Record form on yellow stock, 8" x 5". The other card is a Stock or traveling requisition form on blue stock, of the same size.

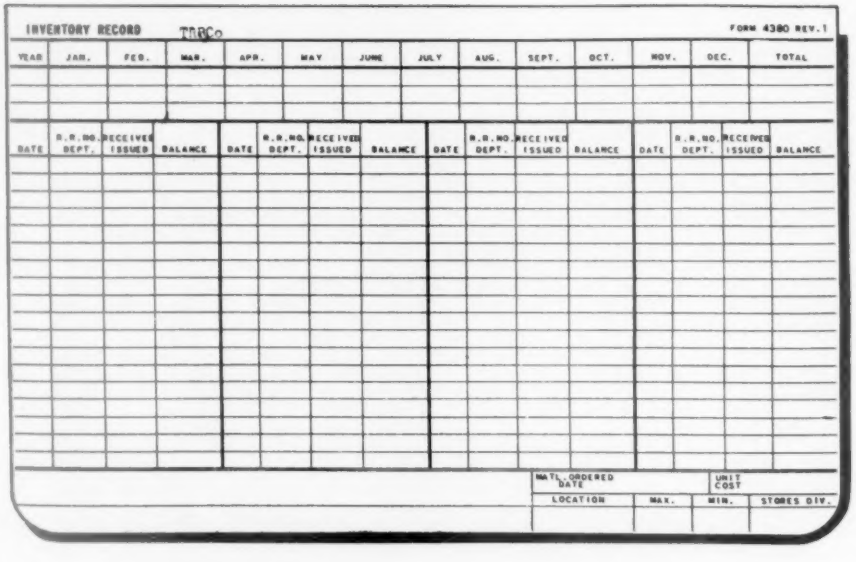
When the stock of the particular item covered by a set of cards nears the minimum inventory, the Stores Division pulls the blue card from the file, indicating thereon the amount required and the desired delivery, and forwards it to the Purchasing Department. As soon as Purchasing makes out purchase order to cover, the blue card along with copy of the purchase order is returned to the Stores Division. This process takes about six days as compared with the ten days time formerly required.

The stock or traveling requisition maintains a complete purchase record of the stock listed thereon. It provides space for name and address of vendors, requisitioning record, ordering record including purchase order number, quantity, list price, discount, terms, etc., and receiving record. Stock number or name of item, maximum and minimum inventory, and point of delivery are shown at the bottom of the card.

The yellow card, or Inventory Record form, remains permanently in the stock room. This card carries a record of disbursements, receipts, total monthly usage, maximum-minimum stock figures, unit cost, and other data, and constitutes a permanent inventory of the item.

More than 35,000 items are han-

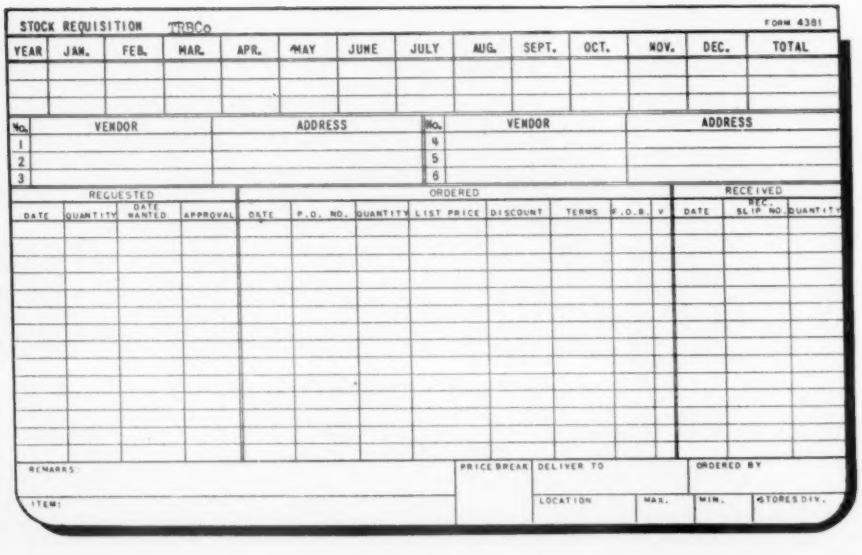
(*Please turn to page* 184)


INVENTORY RECORD TRBCo FORM 4380 REV. 1

YEAR | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | TOTAL

DATE | R.R.NO. DEPT. | RECEIVED ISSUED | BALANCE (repeated)

MATL. ORDERED DATE | UNIT COST | LOCATION | MAX. | MIN. | STORES DIV.


STOCK REQUISITION TRBCo FORM 4381

YEAR | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. | TOTAL

No. | VENDOR | ADDRESS | No. | VENDOR | ADDRESS

REQUESTED: DATE | QUANTITY | DATE WANTED | APPROVAL

ORDERED: DATE | P.O. NO. | QUANTITY | LIST PRICE | DISCOUNT | TERMS | F.O.B. | V

RECEIVED: DATE | REC. SLIP NO. | QUANTITY

REMARKS | PRICE BREAK | DELIVER TO | ORDERED BY

ITEM: | LOCATION | MAX. | MIN. | STORES DIV.

These two forms constitute the "card index" system. The card above, which is printed on yellow stock, 8" x 5", is the Inventory Record form. The card to the right, same size printed on blue stock, is the Traveling or Stock Requisition card.

Now!

A really big difference in continuous typing!



Standard's New Automatic Line Finder makes "vertical tabbing" automatic!

Can you imagine typing invoices on a typewriter with no tabular arrangement to stop the carriage *horizontally* at the proper positions? Hardly!

But what about *vertical* "tabulating?" Do your typists and machine operators have to bang away at the carriage return, or wind the platen knob, to advance continuous forms to the next writing space — or to start a new form? There's no need for this loss of time!

Standard Register's Automatic Line Finder acts as a "vertical tabulator"

With Standard Register's exclusive Automatic Line Finder and Kant-Slip continuous forms, the operator simply pulls the lever — and the forms *automatically advance* to the next predetermined writing line. She doesn't even need to look at the form — she can keep typing, knowing the form is in the proper position for the next typewritten entry.

The time saved is enormous — the average operator runs nearly *2 miles* of forms through a business machine a year, *one-sixth of an inch at a time!* The Line Finder does *much* of the job for her automatically — cuts interruptions, lessens fatigue. It makes *continuous operation* possible! For more facts, phone Standard Register in your city. Or write us at 410 Campbell St., Dayton 1, Ohio.



STANDARD REGISTER

Labor-Saving Business Forms and Devices

ORIGINATORS OF MARGINALLY-PUNCHED CONTINUOUS FORMS

Application of Electronics to Office Operations Major Theme of AMA Conference

The demand for new efficiencies to offset the spiralling costs of traditional office methods and procedures may bring about a complete revolution in the field of office management which will strike hard at time-honored concepts, according to the American Management Association.

This conclusion is based on a survey of qualified observers and representative executives in the field, conducted by A.M.A. in determining the program for its fall office management conference. Approximately 600 office executives from all over the country are expected to attend the two-day meeting, scheduled to be held at the Hotel New Yorker, Oct. 16-17.

The growing application of electronics to office operations provides the major theme for the conference. New developments in the use of electronic machines will be reviewed at the opening session by Professor Howard H. Aiken, director of the computation laboratory at Harvard University, who will also separate "fact from fantasy" in a report on the capabilities of these new machines.

The building of a checklist for making decisions on the adoption of electronic accounting equipment, as used by the Shell Oil Co., will be described by Matthew W. Boz, assistant manager of the methods and statistics department of the company; and David V. Savidge, sales manager, Univac Fac-Tronic System, Remington Rand, Inc.

A report on a full year of experience with electronic accounting operations will be given at an afternoon session by E. J. Cunningham, assistant controller of Monsanto Chemical Co. This will be followed by a discussion of the problems of getting a smaller office ready to take advantage of electronics in the conduct of its operations. The subject will be covered by John A. Sonnichsen, assistant treasurer of American Hard Rubber Co., who will report on how his company overhauled its office system and methods, meeting its schedules, producing results and getting set for the shift.

Work measurement in the office will be discussed by a panel of representatives of several leading companies; among them—Chemical Bank and Trust Co., Atlantic Refining Co., etc.

At a sesssion on organization, scheduled for the second day of the conference, executive development in the office will be explored by Thomas E. Hurns, secretary and general accountant for the Detroit Edison Co. The place of the office management function in the company organization will also be discussed.

QUALITY CONTROL IN OFFICE

The subject of quality control in the office will headline the final session of the conference. There will be a panel discussion presenting case histories of four leading companies — Johns-Manville Corp. (Simon Collier, quality control engineer); Standard Register Co. (Fred E. Shelton, Jr., office manager); United Airlines (Dale Lobsinger) and Aldens, Inc. At a special luncheon session, a leading social scientist will discuss the effects of electronics, in "a look at the white collar."

"WORKSHOP EXHIBIT"

For the first time at an A.M.A. Office Management Conference, a "workshop exhibit" will be presented as a special feature of the October meeting. This will be an educational display of materials covering space utilization-layout and methods, organization, and the methods department—its place in the company organization.

NEW SALES MANAGERS NAMED BY REMINGTON RAND, INC.

Robert D. Brown has been appointed Sales Manager for Systems Products Operations, and Walter



R. D. Brown, Sales Manager, Systems Products Operations, Remington Rand

L. Cornwell has been named Sales Manager of Photo Records & Television in the home office of Remington Rand, Inc., New York. Previously Mr. Brown was branch manager at Hartford, Conn. Mr. Cornwell has been associated with the Photo Records Department since its organization in 1932.

SALES ORGANIZATION CHANGES ANNOUNCED BY McBEE COMPANY

The following shifts in the sales organization of the McBee Company, were recently announced:

Los Angeles: E. D. Tunis transfers from the Hartford Office to Los Angeles, where he assumes new duties as regional manager, replacing E. R. Freed who will pioneer a new McBee office in Honolulu.

Hartford: St. Clair Bromfield, former Albany manager, moves into the Hartford vacancy.

Albany: Robert S. Miller, former assistant manager in Newark, N. J., is promoted to the Albany managership.

FREDERICK POST OPENS EASTERN OPERATION

The Frederick Post Company of Chicago, announces the establishment of new manufacturing plant and warehouse facilities at Englewood, N. J., to service the area including all of New England, New York and Eastern Pennsylvania.

CASE HISTORY STUDY COVERS PURCHASE RECORD AND OPEN-ORDER FILE

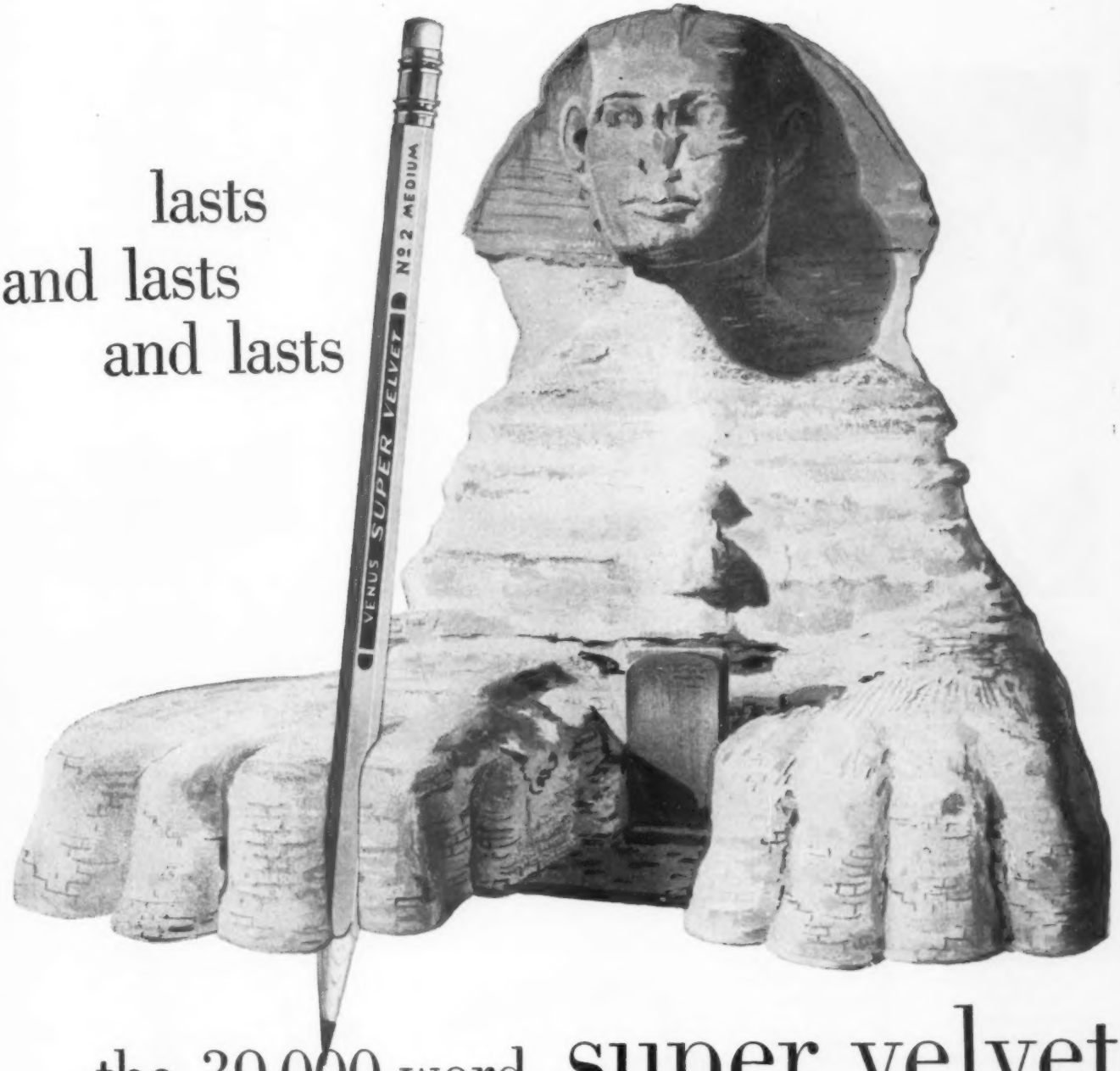
"The measure of effectiveness of a purchasing department is to provide manufacturing and operating departments with no more and no less of the items required at their proper time of need," says Llewelyn Jones, Director of Purchasing, Heywood-Wakefield Company, Gardner, Mass.

A certified case history of how Kardex visible purchasing records help the Heywood-Wakefield Company maintain a smooth running purchasing department, is contained in case history No. 818 released by Remington Rand, Inc., 315 Fourth Avenue, New York, N. Y. The first of the records is the Kardex visible purchase history and quotation record, which provides basic facts which are useful in determining the best way to buy against specific requisitions. It removes the necessity of relying on memory or searching vertical files of completed orders to get the benefits of previous experience in buying the same materials.

The second record used is an

(*Please turn to page* 186)

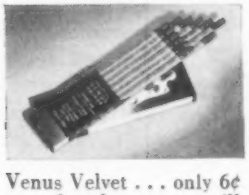
lasts and lasts and lasts



the 39,000-word super velvet



Buy them by the dozen . . . buy them by the gross . . . for *every* writing job in your office.



Venus Velvet . . . only 6¢ . . . for the money still the finest pencil you can buy.

See your commercial stationer for these pencils.

The great new Super Velvet seems to go on forever! **It's more economical** . . . writes 39,000 words in actual tests . . . that's more than four months at an average 500 words per working day! **It's smoother** from the first word to the last . . . because the lead is homogenized* for flawless, fine-grained consistency. No hardspots, no scratching ever interrupt its velvety flow. **And it's stronger** because the exclusive pressure-proofing* clinches wood to lead, ends internal snapping and breaking. **Get greater writing ease, greater pencil mileage** . . . put the 39,000-word VENUS Super Velvet to work in your office! Write for sample on your company letterhead.



American Pencil Co., Hoboken, New Jersey, makers of the famous Venus Pencils and Venus Pens.

*Exclusive Venus process

MESSAGES THAT MADE HISTORY • No. 11 OF A SERIES • COPYRIGHT 1952 • GILBERT PAPER COMPANY



Uncle Sam might not have been...

We might today be driving down the wrong side of the street and singing "God Save The Queen." That is if the fellow members of His Majesty's Parliament had listened to Edmund Burke back in 1774.

Edmund Burke never saw America. But it was perfectly clear to him that it would one day be a great power. "The question with me is not whether you have the right to make your people miserable but whether it is not your interest to make them happy." . . . "Slavery they can have anywhere."

In brilliant letters and stirring addresses he fought the obnoxious taxes and the arbitrary rule England imposed on the colonies. But Edmund Burke in all of Parliament fought virtually alone.

The day of Edmund Burke had no specialized requirements for paper. Today the mechanized efficiency of the modern office requires many different types of paper. Gilbert offers you the most complete line of new cotton fibre papers for your office use . . . making it possible for you to select exactly the right paper for the right job from one source. And, tub-sized, air-dried Gilbert Papers are unsurpassed for sparkling appearance, snap, erasability, and toughness to withstand constant handling.

Ask your printer, lithographer or engraver for samples of Gilbert Quality Papers.



TUB-SIZED AIR-DRIED

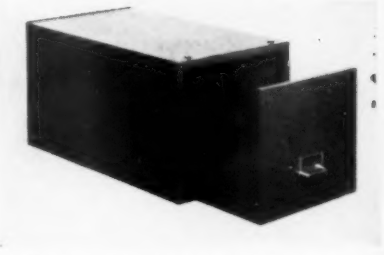
BOND • ONIONSKIN • LEDGER
INDEX BRISTOL • MANUSCRIPT COVER • VELLUM • SAFETY
REPRODUCTION • BANKNOTE PAPERS

A good letter is always better-written on a Gilbert Bond

(*Continued from page* 180)

dled by the Stores Division. It is expected that the changeover to the "card index" system will be completed by the end of the year, and it is felt that in addition to reducing the time lapse between requisitioning and receipt of material the new system will reduce paperwork in both the Stores Division and Purchasing Department because of its completeness and simplicity. The cost of the change over is estimated at $2,000.

TRANSFER CASE HAS INTERLOCKING FEATURE FOR STACKING



The accompanying picture shows transfer case made by the Mayfair Co., 315 No. Des Plaines St., Chicago, Ill., which is of all-steel construction. Back is completely enclosed, keeping out dust and dirt. The cases are 24 inches deep, and drawers glide on rollers. They can be stacked and interlocked.

DICTATING BLANKS GUARANTEED FOR YEAR OF REUSE



A full year's warranty which assures the customer the reuse of his dictating blanks during a twelve months period irrespective of how many times the blanks are used, is announced by Magnetic Recording Industries, 30 Broad St., New York 4, N. Y. The warranty covers the single and double-faced plastic Magic-Discs as well as the paper Magic-Discs which can be folded and mailed in a standard envelope, used on the Voice-Master Dictating Machine. Due to the one year reusability warranty, over 700,000 words can be dictated for 30¢.



Have you tried a Morriset?

Great NAMES IN INDUSTRY.... CHOOSE *Great* DESK TOP EQUIPMENT!

BERT M. MORRIS CO. is *foremost* in the field of *matched* Desk Top Equipment.

The complete setting shown—pen set, memo pad, letter tray, ash tray, and phone rest, retail for less than you would expect to pay for one fountain pen set.

MORRISET— the constant flowing, all-round writing implement that holds a full 2½ ounces of ink for months of writing without refill. Your choice of five quickly replaceable "thread-in" points—extra fine, fine, medium, broad, stub.

THERE IS NO SUBSTITUTE FOR QUALITY. *All Morris writing sets are equipped with iridium tipped points and each point is tested and approved at factory for writeability.*

5 POINTS FOR "Write-ability"

STUB

BROAD

MEDIUM

FINE

EXTRA FINE



Desk Top Package Deals—#100 and #200
Inquire about the surprisingly low cost of matching your desk with these items.



FOUNTAIN PENS — an efficient and economical pen set with "thread-in" point section. A real time and money saver in any office.



BOOK ENDS — at last — inexpensive book ends to match modern office furniture.



MEMO PADS — available in two types. With jewelers bronze bar that drops as paper is used, or standard box style.



LETTER TRAY — strong two point suspension allows access from entire front and both sides. Tiers quickly added, legal or letter size.



ASH TRAY— A real He-Man ash tray. Glass lined, perfect for any desk or conference table.

BERT M. MORRIS CO.

Dept. P-10, 8651 West Third Street
Los Angeles 48, California
In Canada: McFarlane Son & Hodgson, Ltd., Montreal, Que.



A salesman's success begins (or ends) at the home office!

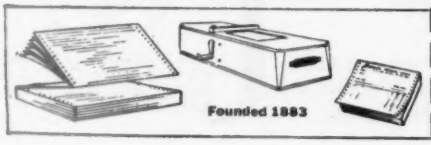
Again customers are in the saddle and they're digging in the spurs. They insist on quick answers to inquiries, quick quotations and estimates, quick acknowledgment of orders, quick shipments, quick and accurate service throughout. And they'll get such service from you—or from your competitor.

Unless his office backs him up all along the line, the best salesman who ever lugged a brief case can perform no better than a second-rater.

How does *your* office stack up on speed and efficiency? Are you still laboriously collating and typing cut forms and carbons (as many still do), when you could save time with continuous forms? Or have you examined your office forms recently to see whether some could be combined for a single typing?

If you are looking for ideas for streamlining your paperwork, just mail the coupon, mentioning the kind of forms to be designed, nature of business, and office machines used. We will gladly prepare a folder from our extensive Forms Library, containing typical samples used by other firms.

Autographic
BUSINESS FORMS
AUTOGRAPHIC REGISTER COMPANY
219 7th Street, Hoboken, New Jersey



AUTOGRAPHIC REGISTER COMPANY
Hoboken, New Jersey
We would like to receive a folder of sample continuous forms for.....
kind of forms
Forms will be used on.....
type of machine
The nature of our business is.....
.....
NAME.....
POSITION.....
COMPANY.....
STREET.....
CITY.....STATE.....

(*Continued from page* 182)

open-order file, housed in follow-up folders. Requisitions, quotations, correspondence, telephone conversations and any other pertinent papers are all kept in one place for quick reference when needed.

BRUNING INTRODUCES DESK-SIDE COPYING MACHINE



New desk-side copying machine, the Copyflex Model 14, has been put on the market by the Charles Bruning Company, Inc., Teterboro, N. J. The new machine makes low-cost, positive copies of practically anything typed, written, printed or drawn. It has a 20" copying width, making possible the copying of the bigger accounting and statistical sheets, or letter-size forms two at a time. Bruning says that the cost averages less than 2¢ per square foot of copy, including machine depreciation, floor space, material uses, and all other charges including operator's salary.

The new Copyflex takes up less than a square yard of floor space, and can be rolled on its casters to any worksite, where only a connection with a standard 115 volt A-C power circuit is required. Copy work is merely a matter of feeding the original and the Copyflex paper into the machine, ready-to-use copies being produced in a matter of seconds.

CHANGEABLE TYPE BARS FOR TECHNICAL TYPING

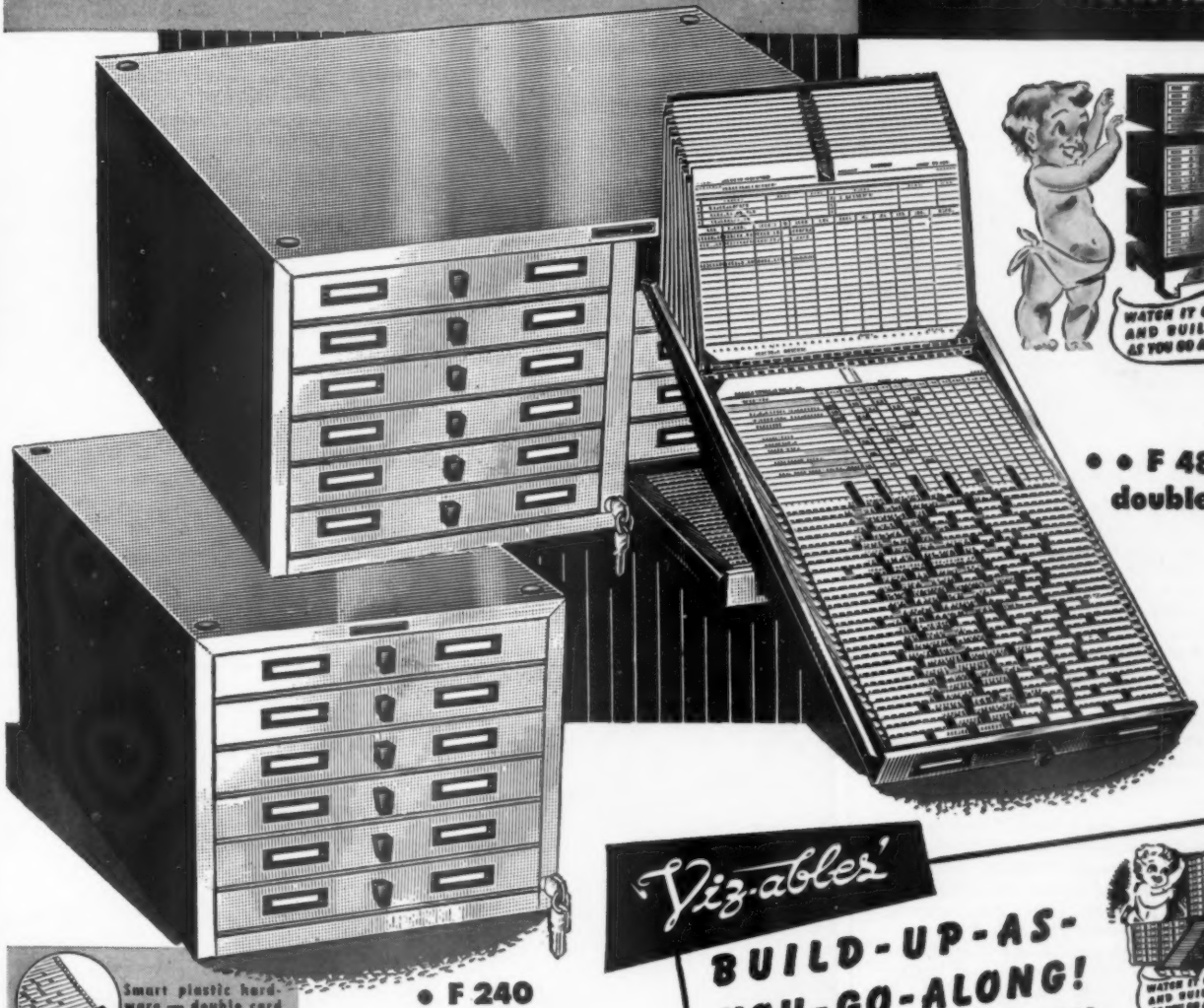
Announcement is made by the International Business Machines Corporation of the development of changeable type bars for its electric typewriters. The new type bars are designed to increase the flexibility of these machines, especially in typing operations that require chemical, mathematical or other scientific as well as foreign language symbols. Special type characters such as subscripts and exponents are also included. The type bars may be readily inserted by the typist.

Steelmaster 'Viz-ables' FILING SYSTEMS!

THE WORLD'S LOWEST COST

The Futura 'Viz-ables'

VIZ-ABLE CARD FILING FACILITIES



• • F 480 doubles

• F 240 singles

'Viz-ables' BUILD-UP-AS-YOU-GO-ALONG! WATCH IT GROW



Smart plastic hardware — double card holders for fuller indexing . . . organizing.



Easy removability of cards—simple replacement, system always in flat top efficient operating position — no ruffling, scuffing.



Perfectly adaptable for all systems of signals. Pick your own.



Uniform visibility of pockets — full .0025 visibility. Pockets die cut for 3x5, 4x6, 5x8 cards.



Security cabinet locks available to close all drawer sections.

★ Full "eye-range" visibility
★ An easy portable, workable, visible system
★ At a remarkably low price.

THE FUTURA "VIZ-ABLES"

ITEM NO.	DESCRIPTION	DRAWER SECTIONS	FOR CARD SIZE	CARD CAPACITY	DIMENSIONS H.	W.	D.	SHIP. WT.
F240	• Single Cabinet Futura "Viz-ables" Complete 240 pockets	6	5 x 8	240 ea. side 480 front & back	9"	10¼"	16"	30 lbs.
F480	• • Double Cabinet Futura "Viz-ables" Complete 480 pockets	12	5 x 8	480 ea. side 960 front & back	9"	20"	16"	55 lbs.
	Pocket Capacity Per Drawer—40		Inside drawer dimensions		1⅛"	9"	13⅛"	
VB	Sanitary Base for F240				15"	10¼"	16"	7 lbs.
DVB	Sanitary Base for F480				15"	20"	16"	10 lbs.

Available in grey or green—locks extra

Literature Available

art steel sales corp. new york 63 n. y., u. s. a.

Get the most out of your purchasing forms...



THIS FREE BOOK SHOWS YOU HOW

What sort of Purchase Requisition do you require before you issue a Purchase Order? Do you have a simple, efficient method for getting and comparing competitive quotations? How do you inform key departments quickly of the arrival and acceptance of incoming material? Do you have a workable way of returning defective goods?

These are only four of the many questions you have to consider in getting the most out of your purchasing forms—questions involved in the big job of weighing the hundreds of details involved in designing hard working, fast operating purchasing forms.

Here's where the Uarco Purchasing Encyclopedia can help you. This book, the result of years of research, clearly presents the function, use and design of 9 significant Purchasing Forms. There's a section devoted to each form with full discussion of details of design, operation and distribution of copies—well illustrated for quick reference and full understanding.

If you are responsible for the purchasing procedure in your organization, send for your Uarco Encyclopedia today. It will help you check up and see if your Purchasing forms are doing a complete job.

UARCO INCORPORATED

Factories: Chicago; Cleveland; Oakland; Deep River, Connecticut; Watseka, Illinois—*Sales Representatives in all principal cities.*

Business Forms

Write or pin this coupon to your letterhead and mail for your FREE copy



UARCO INCORPORATED
Room 1619, 141 W. Jackson Blvd.
Chicago 4, Illinois

Please send me free copy of Uarco's Encyclopedia of Business Forms for purchasing.

My Name.....

My Title.....

Are You a Good Dictator?

Self-Appraisal Quiz Lists Twenty Questions As Aid to Better Personnel Utilization

The following twenty questions to be answered "yes" or "no" make up "Self Appraisal Sheet for those Giving Dictation", appear in Booklet "How to Conserve Stenographic and Typing Skills", which was originally prepared by the former Interagency Stenographic Conference, for the purpose of interchanging ideas about training and utilization of stenographic and typing personnel, and which has been revised and reissued by the Civil Service Commission, as an aid to better personnel utilization. A copy of the complete booklet is available from the Government Printing Office, Washington 25, D. C., price five cents.

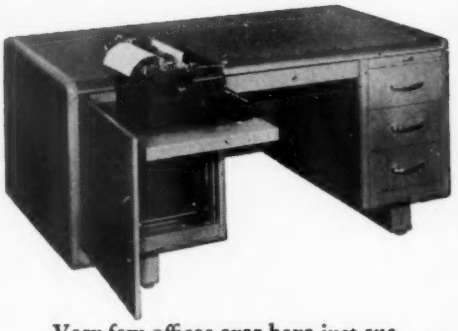
DICTATOR'S QUIZ

1. Have I a definite period for dictating each day?
2. Am I allowing the stenographer ample time for transcription before the mail closes?
3. Am I making every effort to prevent unnecessary interruptions during the dictation period?
4. Do I have available all the information that I will require during the dictation period?
5. Am I concentrating during my dictation so that I do not waste my time and that of the stenographer?
6. Do I indicate clearly whether material dictated is memorandum, letter, report, or other type of communication?
7. Do I indicate how many copies I need before the material is typed?
8. Do I indicate which letters are to be rushed?
9. Do I ask for a rough draft when I anticipate changes?
10. Do I make all changes in a rough draft the first time so that the letter must be copied only once?
11. Do I spell unusual words and proper names and clearly enunciate figures?
12. Do I enunciate clearly and speak directly to the stenographer?
13. Am I regulating my dictation speed to the stenographer's writing speed?
14. Am I giving the stenographer an opportunity to ask questions on points which are not clear to her?
15. Am I making myself responsible for grammar and sentence structure?
16. Do I compliment my stenographer when she gets out a nice-looking letter or report?
17. Do I take the blame myself for errors that are my fault?
18. Do I indicate minor corrections in such a way that the material does not need to be retyped?
19. Do I make corrections in longhand on informal communications?

(*Please turn to page* 190)



Now we all want STEEL AGE!



Very few offices ever have just *one* Steel Age Secretarial Desk! For the beautiful design, superb comfort and wonderful work-ease of the first one is a sound investment in office efficiency well worth multiplying. Your Steel Age dealer has helpful desk planning information waiting for you. *Call him!*

Corry-Jamestown Manufacturing Corp.
Corry, Penna.

Steel Age

At Leading Office Furniture Dealers from Coast-to-Coast



3 ways to cut office costs by improved filing methods

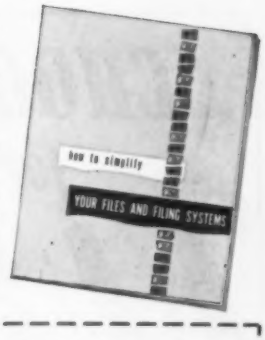
1. The right filing system speeds filing and finding
Saves 25% or more on clerical time for operating your files. Saves executive time that's wasted in long waits for material from files. Saves costly filing errors. Let us help you choose the right system for speed and accuracy on *each* file... the right methods for sorting, handling, cross-indexing, controlling and protecting your records.

2. The right filing cabinet saves effort and motion
Choose your files for labor-saving ease of operation, long-lasting efficiency, and maximum return per dollar. Also, choose for maximum return per sq. ft. of floor area—from our complete line of compact, space-saving, five-drawer file units; double-duty counter or desk file units; and correct drawer size for each type of record.

3. The right filing service saves upsets in routines
Let our file analysts give you an expert *outside viewpoint* on your filing methods. Have each file analyzed for possible savings. Get help in classifying records, installing new systems, training file clerks, and standardizing file procedures. Also, get regular maintenance service to keep file equipment at top operating efficiency.

Good filing is good management. *You'll find useful ideas by the dozen in the new Remington Rand manual of practical filing procedures. Just one idea may save you $100 to $1000. Coupon brings you this valuable 40-page booklet without obligation.*

Send for free Manual



Management Controls Reference Library
Room 1420, 315 Fourth Ave., New York 10

Please send me your filing manual LBV-396.

Name_____ Title_____

Firm_____

Address_____

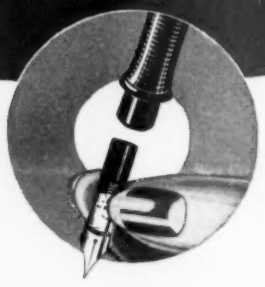
City_____ Zone____ State____

For all your filing needs:
one source, one responsibility

Remington Rand INC.

Always ready to write...

needs ink only 4 times a year in normal desk use



WRITES FULL PAGE WITHOUT RE-DIPPING.

TO SELECT OR REPLACE ... HERE'S ALL YOU DO

Finger grip never touches ink. No chance for ink to touch you.

"Ink-Locked" against accidental spillage. Can't leak. Won't flood.

Base holds 40 times more ink than ordinary fountain desk pen sets. Easy to clean as a saucer.

Single and double sets in service and executive models to harmonize with any desk.

CHOOSE the right point for the way you write



Only more-popular point styles shown. All points instantly replaceable in case of damage.

ASK FOR A DEMONSTRATION AT ANY PEN COUNTER

Esterbrook®

"444" DESK PEN SETS

The Esterbrook Pen Company, Camden 1, New Jersey

The Esterbrook Pen Company of Canada, Ltd., 92 Fleet St., East; Toronto, Ontario

COPYRIGHT 1952, THE ESTERBROOK PEN COMPANY

(*Continued from page* 189)

20. Do I avoid keeping my stenographer after office hours to do work that can be done just as well the next day?

The booklet contains an eight-point program on how to make more and better use of stenographic and typing personnel, and presents some actual case studies of utilization problems with which Federal agencies have been faced and the solutions they have developed. These cover such subjects as using form letters, pooling secretaries, making extra copies, filing, and maintaining workloads. There is also a check list for transcription supervisors.

NOISELESS, ELECTRICALLY-DRIVEN ADDING MACHINE



The accompanying illustration shows the "noiseless" Odhner adding machine, electrically-driven instrument being distributed by Facit, Inc., New York. This Swedish-made machine operates with a rotary-type action which is said to reduce sound, vibration and wear. The machine comes in three models, one of which has automatic credit balance, registers 10 digits and totals 11. All models have direct subtraction. The machine has a cast aluminum base, rubber rear wheels for free-wheeling movement on desk or table, and a spindle-less tape holder makes changing tape fast and easy.

NEW DEVICES EXTEND USE OF PUNCHED CARD ACCOUNTING

A self-checking numbering device and an auxiliary information storage device to extend the applications and flexibility of its punched card accounting, is announced by International Business Machines Corporation.

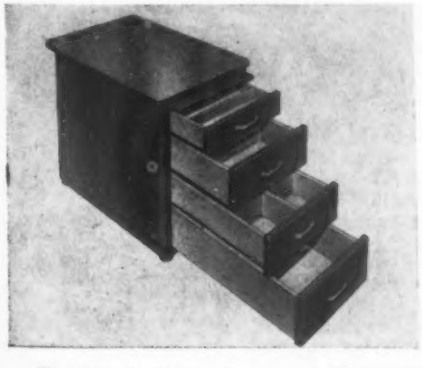
The self-checking number device makes available an entirely new method whereby a series of digits may be key-punched and verified simultaneously. This development

utilizes a "check digit" which is suffixed to a basic number, such as a parts number, and which is determined by a special computation of the digits in the original number. The new device performs a calculation on the basic number during punching and compares the result with the check digit. If this comparison is in agreement, the number has been punched correctly. If a mistake has been made, the machine suspends operation and indicates an error. Not only does the self-checking number device uncover errors made by the operator, but it also provides double verification by detecting errors made in writing the source documents themselves. For new account numbers, part numbers, or other identifying numbers, the new device enables the IBM card punch to determine automatically the proper check digit and punch it into the card after the operator has entered the preceding digits.

The auxiliary storage device for IBM electric accounting machines makes it possible to store indicative information such as invoice numbers or department numbers, for example, without using counters for this purpose. The availability of these counters for the accumulation of totals results in greater versatility for the accounting machines. With the aid of the auxiliary storage the IBM summary punch, for example, even when all counters are carrying information, still can punch either numerical or alphabetical digits.

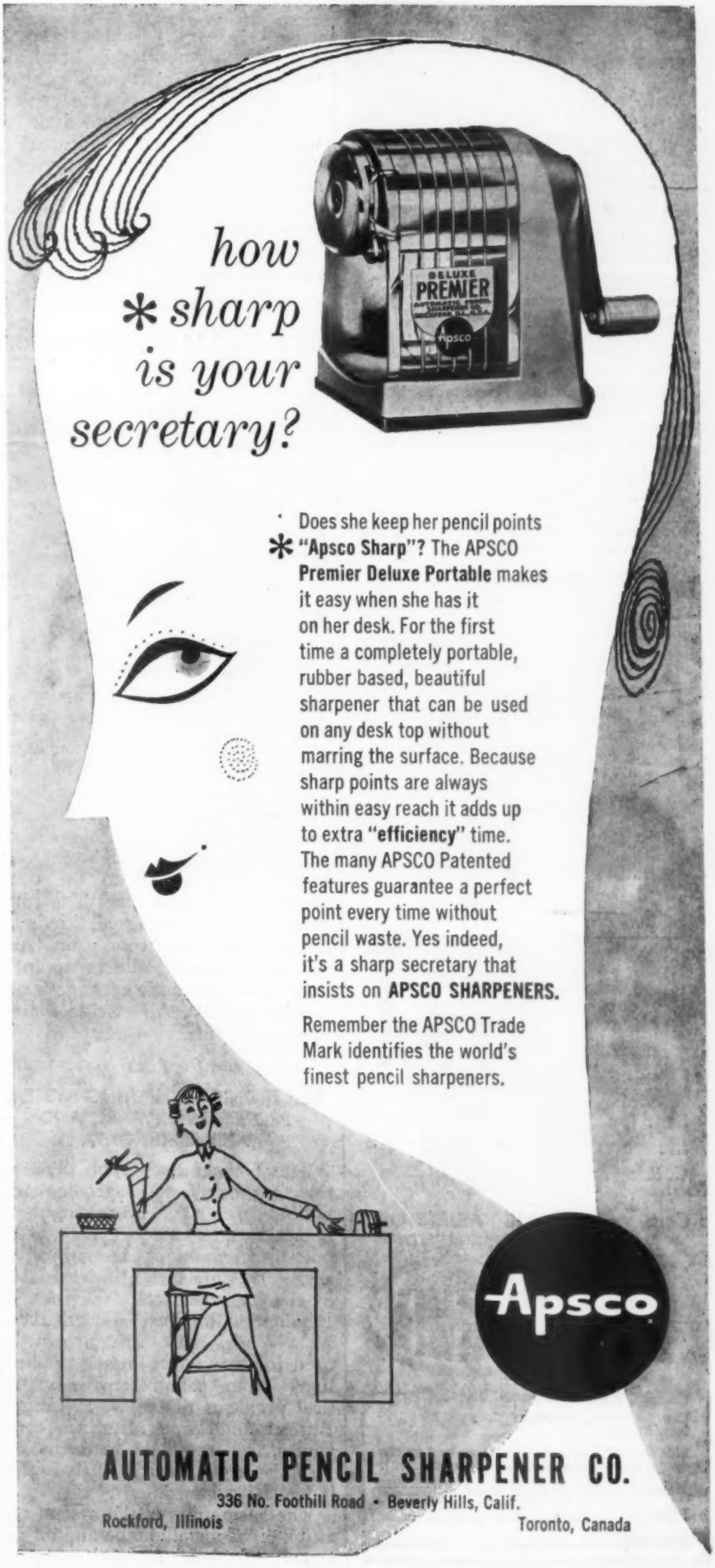
* * *

ALL-STEEL KEY PUNCH DESK HAS TWO-FOLD PURPOSE



Featured item in new line of tabulating accessory office equipment by Duro Consolidated, Inc., 8th Ave. & Edison Way, Redwood City, Calif., is an all-steel Key Punch Desk for operators. A two-fold purpose is claimed for the unit —providing space for work in process or undisturbed overnight stor-

(*Please turn to page* 192)



SPEED your MAIL SORTING this low cost way!

CORBIN Mail Handling Equipment saves time — reduces cost. Used in the majority of U. S. Post Offices and in the mail rooms of leading commercial firms, Universities, colleges, hospitals and other institutions.

CORBIN'S facilities and more than fifty years' experience combined, are your assurance of quality equipment at low cost. We will help you choose equipment to meet your requirements. All items are constructed of selected hardwoods. Joints are dovetailed and glued. All surfaces are smooth sanded and varnished or lacquered. Shipped to you assembled, complete with hardware.



Pigeonholes Arranged for Your Specific Needs...



Send for Illustrated Catalog...

Corbin offers WIDE VARIETY OF MAIL ROOM EQUIPMENT

- Work Tables
- Key Cabinets
- Work Benches
- Sorting Tables
- Bulletin Boards
- Portable Tables

CORBIN

Corbin Wood Products Division
The American Hardware Corp.,
New Britain, Conn.

Please send illustrated literature and prices on your Corbin mail handling equipment.

Name.....

Firm.....

Address.....

(*Continued from page* 191)

age right at the machine, and also space for the operator's personal belongings. The desk features a smooth linoleum top and desk feet which can be readily adjusted to exact key punch table height. A series of four compartmented drawers offer more than four cubic feet of storage space. The desk has a height variance of 26½" to 28½", and is 19" wide and 28" deep.

NCR ADDS 18 NEW MODELS OF ADDING MACHINES TO LINE



Forty-eight different models of adding machines were exhibited by the National Cash Register Company of Dayton, Ohio, at the National Office Machine Dealers Convention in Dallas. Eighteen new models were added to the company's line at that time. The company is now making all kinds of adding machines, from plain hand operated straight adders to new multi-total automatic carriage bookkeeping models. All machines multiply and divide.

ELECTRONIC COMPUTING SYSTEM PROCESSES NUMERIC AND ALPHABETIC DATA

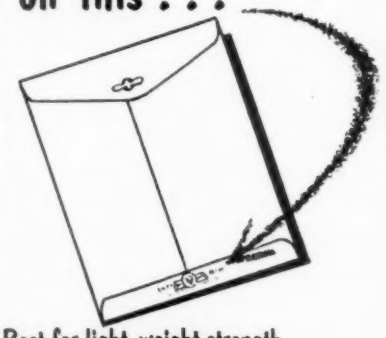
The Univac Fac-Tronic System, the first complete electronic computing system for processing both numeric and alphabetic data without special coding, is the subject of a recently published booklet EL109 by the Eckert-Mauchly Division of Remington Rand, 315 Fourth Ave., New York. The system can be used for many fact-finding applications—from comprehensive statistical problems of the U. S. Census Bureau and large insurance companies, to complex mathematical formulas and records analysis for industrial organizations.

The basic units of the system are an external metallic tape and an internal "dynamic mobile" mercury

Look for this . . .

SHEPCO KLASP
WORCESTER 4, MASS.

on this . . .



Best for light-weight strength with Shepco Safety Klasp

Sheppard ENVELOPE CO.

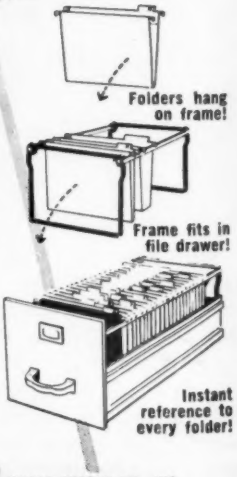
ONE ENVELOPE TERRACE, WORCESTER 4, MASS.
New York Office: 1133 Broadway, N. Y. 10

Att: Women executives—Write today for free booklet "The Feminine Touch In Industry". Dept. #135.

follow the green light to quicker filing

GET OXFORD PENDAFLEX® HANGING FOLDERS

THEY HANG! STRAIGHT! That's the principle which has revolutionized modern filing. Every folder in drawer is accessible — quick to get at. Need a front folder? Find it! Looking for a back folder? Find it! Pendaflex folders slide speedily forward and backward on frames. You reach in drawer; whisk other folders away; instantly select the folder you want.



Oxford FILING SUPPLY CO., INC.
CLINTON ROAD, GARDEN CITY, N. Y.

memory. One reel of the metallic tape contains in a magnetic code, 1,440,000 digits or characters—equivalent to the information that may be recorded on 18,000 punched cards. The computer's internal memory, the "dynamic mobile" mercury tank, will "remember" 12,000 digits or characters at one time. The digits in the metallic tape represent the data to be acted upon by Univac and instructions for arranging and calculating data.

The booklet describes in detail all the component parts of the Univac Fac-Tronic System, such as the Unityper, Uniprinter, Card-To-Tape Converter, etc., plus the various applications of Univac.

* * *

CORRECTION TAPE SIMPLIFIES FLUID DUPLICATOR CHANGES

A self-adhesive correction tape, that comes in one and two-space widths, and which does not need



The tape is dispensed by machine and pressed onto the reverse side of the master.

moistening, for correcting fluid duplicator masters or blocking out undesired portions, is announced by the Avery Adhesive Label Corporation, Monrovia, Calif. The tape, which is not affected by heat, moisture or typewriter vibrations, is dispensed from a plastic container about the size of a small stapling machine.

To use the tape, the operator simply pulls the desired length of tape from the dispenser, presses the tape onto the reverse side of the master over the part to be corrected, and types corrections lightly on the face of the master.

Tip from America's Top Secretaries



"The scale edge on Webster's Micrometric Carbon Paper . . . is essential in producing well-balanced correspondence and reports".
. . . says
FRANCES DOWNS
Secretary to
Mr. Smallwood,
President of
Thomas J. Lipton, Inc.
Hoboken, New Jersey

Mrs. Downs is one of many outstanding secretaries who have discovered how time and trouble are saved by Webster's Micrometric. The exclusive scale edge takes the guesswork out of letter placement by telling at a glance how many lines of typing space remain on a page.

Output increases when re-typing chores resulting from "running over" are eliminated by Micrometric. Impressions are sharp and legible. The scale edge is uncoated —keeps hands and papers cleaner when carbons are removed.

Leading secretarial schools recommend Webster's Micrometric. There's a Webster weight for every office use. Give Webster's a trial and see the difference—in finer and faster work.

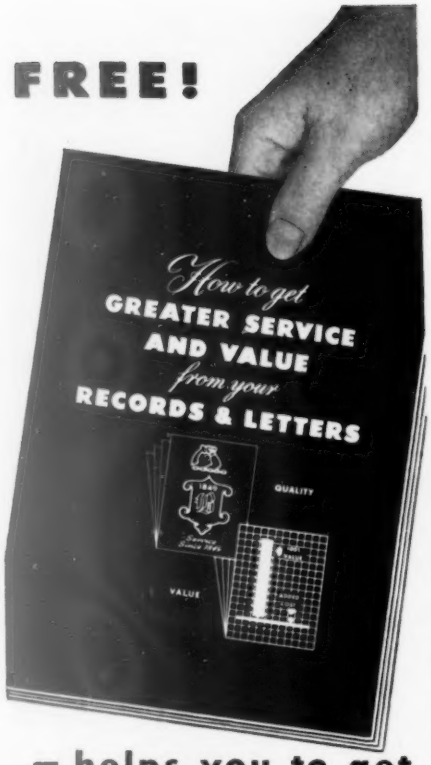


See Webster's complete line of duplicating and spirit supplies at your stationers.

F. S. WEBSTER COMPANY

7 Amherst Street, Cambridge 42, Mass.

FREE!



— helps you to get Better Records and Impressive Letters

- *How to judge paper properties and their value.*
- *How to determine the effect of paper prices on total record or letter costs.*
- *How to get the correct, most economical grade for each specific need.*
- *How to choose papers of permanence, durability, prestige.*

These and the other essential guides to efficient paper selection are fully treated in the clearly-written, amply-illustrated pages of this new, free booklet. If you use, select or buy record or letter papers, you will find this handbook invaluable in helping you make the proper choices. Send for your copy now.

Since 1849

L. L. BROWN

Record and Correspondence

PAPERS

LEDGERS, BONDS, INDEX
BRISTOLS & LINENS

L. L. BROWN PAPER CO., ADAMS, MASS.
Please send me FREE copy of "How To Get Greater Service and Value From Your Records and Letters."

Name_____

Title_____

Company_____

Street_____

City_____ State_____

Please Print Plainly E-101

Plastic Plates Becoming More Widely Used by Printing Industry

Mounted, Unmounted and Curved Plates Include Electrotypes, Stereotypes, Molded Rubber and Plastic Plates — Electrotypes Most Widely Used

Electrotypes are the more commonly used duplicate plates, and are used when printing more than one up, states the International Paper Company, New York, in description of mounted, unmounted and curved plates used in printing processes. They are produced by an electrolysis process and cost considerably less than original engravings. The forms or original plates are carefully locked in a chase, then molded in a sheet of mineral wax, plastic or sheet lead. This mold, called a "case" is coated with powdered graphite and placed in an electroplating bath. A thin shell of copper is deposited on the surface of the mold, exactly duplicating the original form. The shell is then removed and backed up with lead. After finishing, the plate is then blocked on wood, or left unmounted for patent base; or it may be curved for rotary presses. Nickel or chromium shells may also be added for long runs.

Stereotypes are used mostly for newspaper work. They are the most inexpensive duplicate plates, being practical for coarse screen halftones, line cuts and type forms. In this process a paper mat is placed over the form and passed through a molding press. The molded paper mat is then inserted into a casting box and stereotype metal poured in to make the plate. Plates for rotary presses are cast in cylindrical cast boxes.

Plastic plates, rapidly becoming more widely used, are made in three steps. The form to be duplicated is placed in a molding press and over it is placed a sheet of heat-setting plastic. Pressure and heat are applied to make the molding mat. Next the mat is covered with a thermoplastic powder compound and a sheet of the same type of material as the mat. This "sandwich" is returned to the press for molding by means of heat and pressure, then removed, chilled, and the plate stripped from the mold. The plate is then trimmed and either blocked on wood or left unmounted.

Molded rubber plates are manufactured in much the same manner as plastic plates. The matrix mold is made by pressing the original form into impregnated plastic paper or powder compound in a heated molding press. A sheet of uncured rubber is then placed over the mat and the printing plate is produced by a vulcanizing process in the same molding press. Rubber plates are widely used for printing on cellophane, gift wraps, etc., in addition to corrugated cartons, multiwall sacks and grocery bags.

* * *

DUAL-ACTION COMPTOMETER ADDING CALCULATING MACHINE

A brand new product, the Dual-Action Comptometer adding-calculating machine, is being introduced by Felt & Tarrant Mfg. Co., Chicago. It is described as a two-in-one machine in that it has two independent keyboards, two cancelling levers and a divided answer register.

The outstanding feature of the Dual-Action Comptometer is that the operator can calculate on the

Redifixt

BUSINESS FORMS
CARBON INTERLEAVED

Continuous or Single Sets
Invoices • Sales Slips
Shipping Records • Accounting and Tabulator Bookkeeping
Machine Forms • Any Form for Any Business Purpose

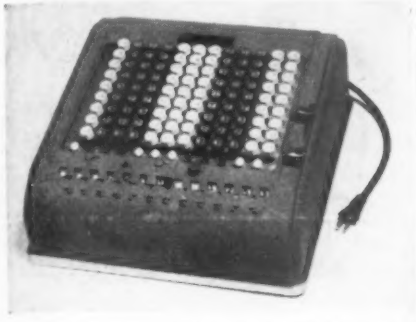
NO PRICE RISE ON
RediFixt
W-2
TAX FORMS for 1952

Consolidated Business Systems, Inc.

DEPT. 006
30 VESEY STREET, NEW YORK 7

right half of the keyboard and accumulate totals on the left half. Totals on the right or calculating side of the Comptometer may be cancelled independently of the accumulating side.

This machine is designed to handle billing, payroll, figuring discounts, sales audit, accounts receivable, statistics and other applications.



On figure work not requiring the dual feature, the operator simply touches the lower cancelling lever which instantly converts the Dual-Action Comptometer into a standard full keyboard all-purpose machine. All models can be "split" at any point to accommodate special types of figure work.

Dual-Action Comptometers are made in 10- and 12-column sizes in both Electric and Non-Electric models. They are finished in a new Sandalwood brown and are available for immediate delivery at a slight additional cost over standard models.

* * *

DUAL TAPE RECORDER FEATURES SYNCHRONOUS RECORDINGS

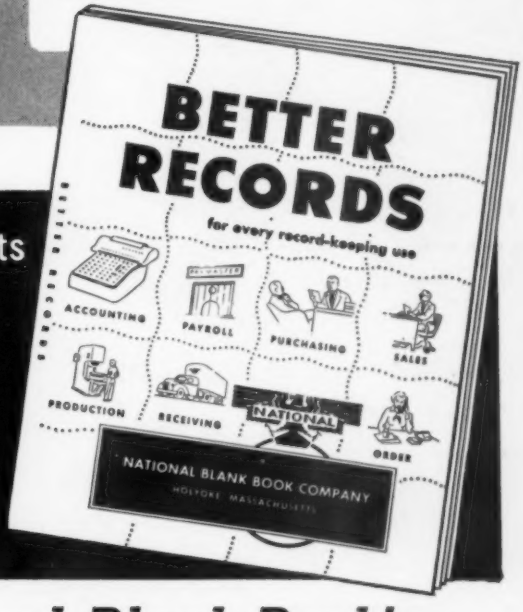
A new type of tape recorder for business and other uses, known as the Synchrotone, has been developed by Magnetic Recording Industries, 30 Broad St., New York, N. Y. The new instrument permits the synchronous recording of two different sound events on the same tape, without actually mixing the sounds on the tape. The two recordings may be made simultaneously, or at different times. Each may be erased, corrected, changed in relative volume, or copied, without affecting the other. Yet both may be played back together in perfect synchronism at any time.

A typical industrial application of the Synchrotone is the preparation of composite sound tracks for training and demonstration films and film strips. Commentary or spoken dialogue can be recorded on one channel, and musical background or

$1 BIG DEAL

gives you a great Deal!

1 Makes office reports more accurate
2 Speeds them to your desk
3 Shows how to save 200%-300% on record forms



It's National Blank Book's NEW Records Catalog

You, your accountants and department heads will all agree that the dollar spent for this new Records catalog is the best investment in office efficiency ever made! Apart from more accurate and time-saving reports, you'll cut record-keeping costs to the bone by using National's inexpensive stock forms as against high cost special forms. What's more, you'll save on inventory — your NATIONAL Stationer has them available instantly. Printed in 4 colors, this 100 page, fully indexed "bible of record-keeping systems" contains over 2,000 items including binders and accessory items. Get your copy from your NATIONAL Stationer . . . or clip a dollar bill to coupon and mail — today!

Every Department Can Use It!

Accounting
Advertising & Promotion
Credit
Factory
Order Dep't
Purchasing
Receiving & Shipping
Sales
Warehouse

NATIONAL **National Blank Book COMPANY**
523 Water St., Holyoke, Mass.

Please send me NEW RECORDS CATALOG. Dollar is enclosed

Name .....
Company .....
Street .....
City & State .....

IN THE FINEST OFFICES . . . CRESTLINE, OF COURSE



In the finest offices . . .
CRESTLINE, of course

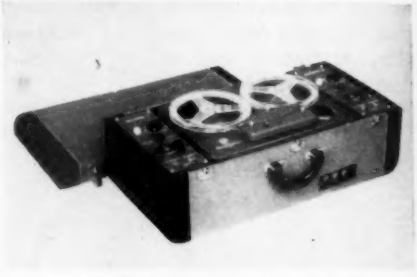
You have been seeing that message on all Security CRESTLINE advertisements. It has been doubly featured here because this office especially portrays the great versatility and unmatched appearance of CRESTLINE Steel Office Furniture. In reception rooms, general offices and executive suites, there are CRESTLINE units planned and designed to do the very best job for you. A good investment for today and many tomorrows . . . CRESTLINE, of course.

Crestline
by: SECURITY STEEL EQUIPMENT CORPORATION
AVENEL, NEW JERSEY

Created by
SECURITY STEEL EQUIPMENT CORP., AVENEL, NEW JERSEY

(*Continued from page* 195)

sound effects dubbed in later on the second channel. Both recordings can be revised and adjusted separately until the composite effect is satisfactory. Then both channels may be



The Synchrotone is now in production

transferred synchronously to the sound track of the film, or used as sound accompaniment to silent film and film strips. Another application is the separation of conflicting voices in conference recording.

NEW MULTIPLE-TOTAL FIGURING MACHINE



A new multiple-total machine capable of giving totals up to 99 billions and handling four sets of figures simultaneously, is announced by the Burroughs Adding Machine Company, Detroit, Mich. There are two models of the new machine. One is a 13 column keyboard model. This one can deliver the 99 billion totals and has a new "internal memory" system making it possible to handle four sets of figures at the same time. The second is a 10 column machine. Each model will deliver instantaneous group as well as grand totals, and each will add and subtract with equal ease and print true minus totals without extra operations.

Ease of operation has been stressed in developing the new models. Every figure and total on the tape is clearly identified. Because the machine returns four sets of figures at one time, the operator

is spared repeated handling of sales slips or other similar forms. Totaling and entering is simplified by a "shuttle lever". At the start of a run of figures, the operator merely sets the lever and then enters the figures as they appear on the slips. From there on in the machine's 'internal memory" takes over. Each figure is automatically sorted into its proper group and is also properly identified on the tape.

* * *

OFFICE MECHANIZATION ELIMINATES "CONCEALED COSTS" OF SLOW, MANUAL WORK

Some solutions to "one of the biggest problems in business today —getting and keeping capable office employees"—are presented in a new booklet published by Pitney-Bowes, Inc., Stamford, Conn.

Entitled "How to Handle 5 Tiresome Office Jobs . . . with Happier Workers . . . and at Lower Cost," the booklet explores the relationship between paperwork drudgery and personnel turnover and concludes that it is essential to make clerical tasks more interesting by the elimination of tedious and monotonous manual operations.

Specifically, the text holds out the prospect of greater job satisfaction through mechanizing such jobs as the stamping and sealing of mail, the opening of envelopes, the weighing of mail and figuring of postage, the folding and creasing of different types of printed material, and the counting and dating and coding of paper forms. In assessing the "office-help" problem, the booklet states:

"Since 1920, the skillful use of machine tools in factories has been largely responsible for a 150% increase in production with only a 53% increase in workers. In these same 30 years, there has been an ever-growing rise in office paperwork and paper handling. In offices, however, the 'machine tools' available to business are not by any means so fully utilized—with the result that clerical employees have increased approximately 150%, from 3 to 8 million, and this army of workers is still increasing.

"Clerical personnel is definitely in short supply. This is partly because of the low birth-rate in the '30s, partly because more hands are constantly needed. But it is also due to the very nature of the work these hands are called upon to do. Most paperwork is wearing, tiresome, repetitive—the treadmill of office routine is less and less attrac-

(*Please turn to page* 198)



Records Stay Put—because Borum & Pease NO-TEAR Sheets *won't tear out* of their ring binders. That exclusive muslin strip is tough enough to support the whole weight of a full, stiff-covered ring book without tearing out at the holes.

Records Stay Neat—B&P NO-TEAR Sheets save retyping because they won't tear out—can't get dog-eared. 30% less bulk too, because NO-TEAR sheets don't have a double thickness like sheets patched with ring reinforcements. Four alternating widths of muslin strip further reduce bulking.

NO-TEAR Sheets come in rulings and sizes for every purpose; in paper for practically every reproduction method. See your Stationer.



Free—Mail this coupon FOR FREE TEST SAMPLE OF B&P NO-TEAR SHEET. NO OBLIGATION.

Name_____

Company_____

Address_____

Boorum & Pease

DEPT. P-2, 84 HUDSON AVE., BROOKLYN 1, N. Y.

(*Continued from page* 197)

tive to a younger generation which has a rising proportion of high school and college graduates, with greater psychological resistance to drudgery jobs.

"In large part, resistance to office employment arises because too many tedious jobs are still done by methods that are truly archaic, that have not changed basically in a hundred years.

"This situation affects big and small businesses alike—it is not the size of a business, but the office work methods it uses, that determines its place in today's competitive 'market' for employees. The companies which have eliminated office drudgery are generally in the best position to attract and hold office personnel.

"That is why businessmen today are studying office procedures and equipment just as closely and critically as factory production methods. They are adopting business machines that eliminate boring, fatiguing handwork — work that breeds resentment towards the job. They realize something must be done to cut down the wasteful turnover of office personnel."

Maintaining that work-burdens and employee attitudes have been improved even in the small business offices where its machines are in use, the company concludes in the booklet:

"Whenever working conditions improve, companies gain not only better, more stable employee relations, but other rewards as well. Mechanizing office routine does away with high 'concealed costs' of slow, manual work — costs that can't be ascertained because they are buried in general clerical expense. Also, clerical capacity is enlarged, time is freed for more important tasks—so that manpower and womanpower are, in effect, multiplied without adding to staff."

NEW RAISED LETTER NAMEPLATES



The Modern Sales Company, 210 Fifth Avenue, N. Y. 10, N. Y., announces that its new raised letter nameplate is handmade from solid mahogany or blonde frames, tooled in a distinctive modern pattern of extreme good taste. Real craftsmanship makes the letters look like they're carved out of solid silver. Enriching the effect is a background of finely stippled jet black metal, which sets forth the letters like jewels on velvet. Some of the physical details are as follows: 1. Available in easel back for counters and desks or with flat back for walls, doors, etc. 2. Size is 8" long x 2" high. 3. Easily read from 20 feet. 4. Accommodates 21 spaces for letters, punctuation and spacing.

HIGH SPEED COPYING MACHINE ANNOUNCED BY BRUNING

Production of a new low priced, high speed Copyflex machine, the Model 30, which will speed production of drawings, tracings and other large sized technical originals, is announced by the Charles Bruning Co., Teterboro, N. J. It may be also used for economical copying of large size records, balance sheets, charts, statistical statements, etc. The "30" has a full 46" printing width to handle 42" roll stock or insertion of multiple cut sheets of copying paper. Its 48", 2000 watt mercury lamp insures uniform exposure, and speeds printing to a

Cleaning such as beats the Dutch





399 TRI-PLY—The original, superior, 3-layer eraser for typists. Two outer plies of red pencil-rubber, for smooth, clean erasures on originals and carbon copies, center ply of soft gray ink-eraser for a single letter or a complete line.

TO such spotless folk, dirt's no joke. Nor are carbon smudges and mistakes in handwriting and typewriting, made worse by messy erasing. That's why, every day in a big way, the Dutch go for the neatest of all erasers — Weldon Roberts — for their spotless-clean results, their super-quality rubber, their convenient shapes. You can achieve neatest, cleanest erasing results NOW. Ask your stationer for Weldon Roberts Erasers in styles to suit your own particular erasing needs.

Weldon Roberts Erasers
Correct Mistakes in Any Language

WELDON ROBERTS RUBBER CO.
6th Ave. & No. 13th St.
Newark 7, N. J.
World's Foremost Eraser Specialists

Raise typing output with SINGLEX
TODAY'S EFFICIENCY-STYLED ERASER

- Sleek, slender, and finger-comfortable
- Makes clean corrections on originals and carbons
- Yours for "letter saving" efficiency
- Simple to resharpen in your sharpener
- Erases single letters without blurring
- Does not abrade or roughen paper
- Your typists will rejoice with Singlex
- Saves you money!



No. 1007—with brush (as shown)
No. 10— both ends sharpened (no brush)

Singlex sharpens like a pencil.
Singlex sharpens like a pencil.
Singlex sharpens like a pencil.

EBERHARD FABER Since 1849

maximum of 12 linear feet per minute.

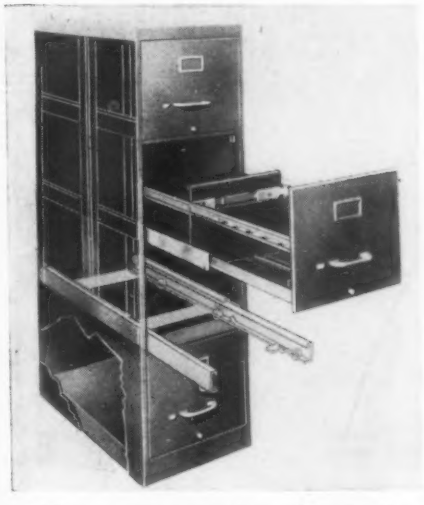
The machine requires no installation, just a connection to a 230 volt, 60 cycle AC power line. Fifty cycle machines are also available. It does not need inks, negatives, masters,



High Speed Copying Machine Announced by Bruning

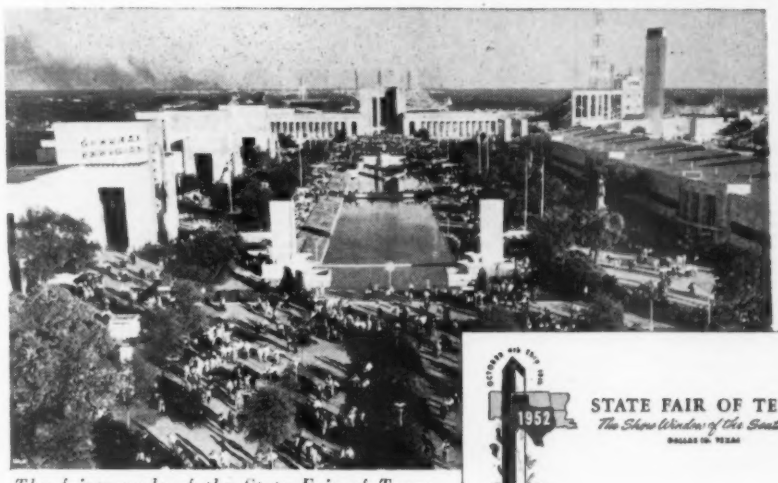
special lighting, dark rooms, plumbing, or exhausts to carry off fumes. Copies may be made on Copyflex sensitized paper, acetate-coated paper, film and cloth. A single control switch turns the machine on and another control regulates printing speed.

DEVELOP NEW ALL SUSPENSION STEEL FILE



The accompanying illustration shows new cradle suspension steel file, announced by the Keystone Equipment Co., Philadelphia, Pa. Features include ten rollers per drawer which provide silent, effortless operation, ratchet type compressor which gives the file adaptability, and locks of the parachentric plunger type. The file is 28″ deep and comes in standard letter and legal sizes, in two, three, four and five drawer units. The files are available in gray or olive green baked enamel.

Prominent Users of Strathmore Letterhead Papers: No. 101 of a Series



The fairgrounds of the State Fair of Texas, valued at $35,000,000, are probably the most magnificent in the world. The nation's largest exposition in terms of attendance, last year's 16 day program drew 2,320,129 visitors.



QUALITY... *the biggest attraction of all!*

The great state fairs held in Dallas since 1886 live vividly in the memories of millions of Texans. Originally established to develop the vast and varied resources of the famous state, coupled with a view to the recreation and cultural enjoyment of the public, *the State Fair of Texas* has become "The Show Window of the Southwest." Texans and their neighbors go to the Fair to learn about new things and new ways in agriculture and livestock raising, to broaden their cultural outlook...and simply to have a good time.

Progressive Texans know that quality is the biggest attraction of all...bring to everything they do the understanding that mere "bigness" is not enough, that to be truly great any enterprise must be firmly established on quality. With this awareness of the importance of quality, the fair association naturally selected a Strathmore letterhead for the Fair's correspondence.

Let the look, the feel, the rightness of a letterhead on Strathmore paper give a big impression of quality for you! Have your supplier show you the difference *Strathmore* quality makes.

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.

STRATHMORE *MAKERS OF FINE PAPERS*

Strathmore Paper Company, West Springfield, Massachusetts

AMONG THE Associations



Sixth Annual District 6 Conference to Be Held in Cleveland, October 10 and 11

The Sixth Annual Conference of the Purchasing Agents of the Sixth District, N.A.P.A., will be held at the Hotel Carter, Cleveland, O., on October 10 and 11.

The Purchasing Agents Association of Cleveland, the host association, has announced the following program for the meeting:

Morning session, Friday, October 10; H. L. Williams, Monsanto Chemical Co., chairman: Call to Order, G. N. Hackett, general chairman; Invocation, Dr. Whyte, Old Stone Church; Greetings, W. D. Kimmell, president of the Cleveland Association; History of N.A.P.A., George H. Porter, III, vice-president, District 6; Purchasing's Part in a Lubricant Program, A. O. Anderson, Aluminum Company of America; Measurements of Purchasing Performance, R. P. Snow, The Cleveland Electric Illuminating Co. The Luncheon Session will be held in the Rainbow Room, under the chairmanship of F. J. Baldauf, Johnson Bronze Co. Guest speaker will be Willson H. Hunter, NACA-Lewis Flight Propulsion Laboratory, on the subject of jet propulsion.

Friday Afternoon Session, Carl A. Glass, president of North Central Ohio Association, chairman: H. W. Christensen, president of the National Association of Purchasing Agents; Industrial Purchasing, a film, introduced by Paul V. Farrell, associate editor, PURCHASING; Education, A. Continuing Project, T. A. Corcoran, past president, N.A.P.A.; Purchasing from the Viewpoint of a Dean of Business Administration College, Paul R. Anders, Fenn College.

Dinner will be held in the Rainbow Room, with Mr. Hackett as chairman of the affair. A special program of entertainment will be presented.

Saturday morning, October 11, Norman Early, president of the Toledo Association, chairman: The Selection and Training of Purchasing Personnel, B. D. Henderson, Westinghouse Electric Corp.; Discussion; an address by a speaker yet to be announced; Discussion; From One P.A. to Another, George A. Renard, secretary-treasurer, N.A.P.A.; Closing Remarks by Mr Hackett.

Associations participating in the conference include those from Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Erie, New Castle, Northwestern Pennsylvania, North Central Ohio, Pittsburgh, Springfield, O., Toledo, Youngstown, and Tri-State (West Virginia, Kentucky, and Ohio).

St. Louis Assn. Makes Plans for New Season

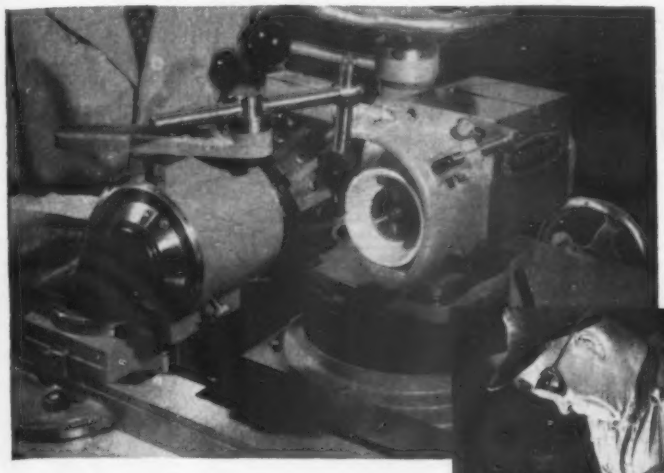


Shown above are members of the Purchasing Agents Association of St. Louis Executive Committee at their most recent meeting at which plans for the coming year were mapped out.

Members of the committee are, seated left to right: J. M. Tyler, Gruendler Crusher & Pulverizer Co., secretary; A. W. Soell, Gaylord Container Co., Vice President of District 3; R. H. Sperreng, Union Electric Co. of Missouri, president; G. S. Forbes, Century Electric Co., first vice-president. Standing left to right are: B. O. Belknap, National Lead Co.; A. G. Vedder, Landis Machine Co.; and E. B. Boub, Star Mfg. Co., all members of the executive committee, and C. D. Hoffman, A. Leschen & Sons Rope Co., treasurer. F. J. Jost, McQuay Norris Mfg. Co., second vice-president, and W. J. Matthews, Falstaff Brewing Co., national director.

Guest speaker at the "kick off" meeting held on Tuesday evening, September 16, at the Park Plaza Hotel, was Robert C. Swanton. Mr. Swanton, purchasing agent of the Winchester Repeating Arms Company, Division of Olin Industries, Inc., New Haven, Conn., and chairman of the Business Survey Committee of the National Association of Purchasing Agents has as his topic, Rip Van Winkle of 1952."

TOOL AND CUTTER GRINDING. Norton New-Process wheels have no equal for uniformity, identical wheel performance and long even wheel wear. 32 ALUNDUM* abrasive for carbon and alloy steel, CRYSTOLON* abrasive for cemented carbides.





MOUNTED WHEELS AND POINTS. Hundreds of sizes and shapes for smooth-as-silk cutting action, with no bounce or vibration. Each one is trued on its own spindle to eliminate "breaking in" and to insure its running absolutely true.

POLISHING AND LAPPING. ALUNDUM grain comes in surface treatments and grain sizes for best results on every polishing job. And precise sizing makes ALUNDUM and CRYSTOLON abrasives favorites for even the fussiest lapping jobs.





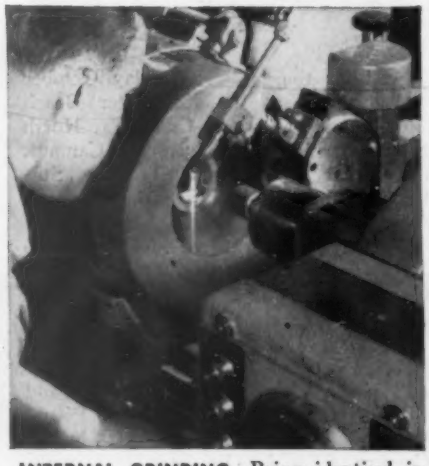
ROUGH GRINDING. On swing frames, floor stands or portable grinders, Norton wheels "hug that work," to cut time and costs. And Norton *Reinforced Hub* Wheels are the safest, most versatile ever made.

BARREL-FINISHING. ALUNDUM tumbling abrasive, being *all* aluminum oxide, cuts without glazing, and has the hardness and toughness to stand repeated use. It's the abrasive for real precision-finishing.

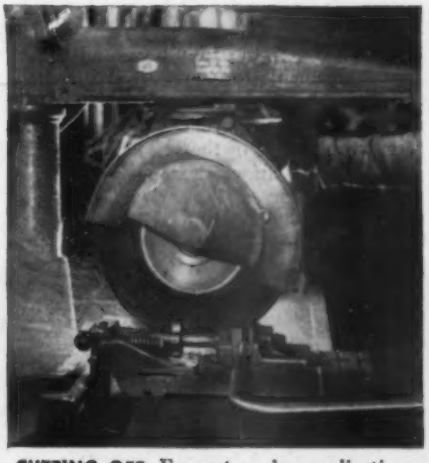




DISC GRINDING. Norton ALUNDUM and CRYSTOLON discs boost production and reduce down-time. They leave flat surfaces straight and smooth, with no excess heat to cause warpage.



INTERNAL GRINDING. Being identical in grinding action, Norton *New-Process* wheels can be changed without machine adjustments. That and uniform top performance make them valuable production boosters.



CUTTING-OFF. For wet or dry applications, high or low speeds, on any material, there's a Norton wheel in ALUNDUM or CRYSTOLON abrasive that's "made to order" for fast, economical cutting off.

"More Value for the Tax Dollar" Theme of N.I.G.P. Convention in Chicago

The National Institute of Governmental Purchasing will hold its Seventh Annual Conference and Products Exhibit at the Edgewater Beach Hotel, Chicago, October 19-22. Consisting of round tables, forums and discussions in which all delegates will take part, the program will cover the fundamentals of public buying.



John F. Ward

It will be geared to the needs and interests of both large and small public purchasing agencies. The program leaders, all practical public purchasing executives, will be headed by Commissioner of Purchase John Splain of New York.

Mayor Martin H. Kennelly of Chicago is Honorary Conference Chairman, and John F. Ward, City Purchasing Agent, Chicago, is General Conference Chairman C. L. Magnuson, Supervisor of Purchases, State of Connecticut is Program Chairman. J. H. Askren, manager of the National Accounts Department, Pure Oil Co., Chicago, is chairman of the Exhibitors Advisory Committee. To date, 77 exhibitors have taken space for the Products Exhibit.

Registrations for the conference will commence on Sunday October 19 on the lobby floor of the Edgewater Beach Hotel. Also on the 19th there will be a ladies "brunch" for wives of delegates and exhibitors as guests of NIGP; a meeting of the Gaveliers, a group of former presidents of the NIGP, and Sunday evening, informal supper and entertainment for early arrivals.

Monday October 20th will commence with the opening of the Products Exhibit and the regular Conference sessions. Features of the day's sessions will be a report by the chairman of the NIGP committee on federal excise taxes on automotive parts; the official luncheon with James S. Knowlson, president and chairman of the Board, Stewart-Warner Corporation, Chicago, and chairman of the Governor's Advisory Committee on Purchasing of the State of Illinois; Preparation and Utilization of Purchasing Forms; Cash Discount Procedures; Accounting and Vouchering Controls.

Tuesday, October 21st, will be devoted to Public Purchasing Ideas and Suggestions—separate administrative round table breakfast sessions for purchasing agents of states, boards of education, cities, counties, and special districts and authorities serving populations up to 150,000, and another for governmental units in this category with populations in excess of 150,000. Subjects will include Testing and Inspection, Salvage, Market Analysis, Commodity Record Card Systems, Commodity Catalogs, and The Preparation and Utilization of Specifications. The usual official luncheon will be held at noon.

Wednesday October 22 will be devoted to a continuation of the subjects under Public Purchasing Ideas and Suggestions, commencing with breakfast sessions. Among the subjects to be taken up are Standardizing Common Use Items, Stores and Stores Control, Public Purchasing Problems—a problem clinic in the form of a panel and round table discussion on the organization and administration of public purchasing departments. This session will include brief discussions of Priorities and Allocations and Textile Specifications.



Albert W. Hall

And for the Ladies: Sunday October 19, "brunch" at the Edgewater Beach Hotel, and tour of Chicago's North Shore, Northwestern University Campus, and Great Lakes Naval Training Station; evening, NIGP informal supper and entertainment.

Monday October 20: Tour of Chicago Parks with a visit to the Garfield Park Conservatory, and then to the Camellia House, Drake Hotel, for cocktails.

Tuesday, October 21: All-day tour and luncheon. In the morning the tour will cover Chicago's South Shore and will include a stop at the Adler Planetarium, and thence to the Tam O'Shanter Country Club for luncheon and cards.

Wednesday, October 22: Another all-day tour which will include guided visit to the Chicago Board of Trade including Observation Tower and the Board of Trade building for skyline view of Chicago; luncheon at the Kungsholm Restaurant, followed by full length Puppet Opera.

Carl Riggs, Director of Purchases, State of West Virginia, Charlestown, W. Va., is president of the N. I. G. P. Albert W. Hall, 730 Jackson Place, N.W., is Executive Director.

PENNSALT PRESIDENT GUEST OF PHILADELPHIA ASSN.



George B. Beitzel

A regular meeting of the Purchasing Agents Association of Philadelphia was held at the Bellevue-Stratford Hotel on Thursday evening, September 11. Guest speaker was George B. Beitzel, president of the Pennsylanvia Salt Manufacturing Company. Mr. Beitzel, a prominent industrialist, spoke on "Security Versus Opportunity."

The general forum was held in the afternoon, and featured the film "Helicopters." Speakers were Jack Cantrell, priorities coordinator, and Earl Woolery, procurement, material department, of the Piasecki Helicopter Corporation.

TULSA ASSOCIATION HAS ANNUAL OPENING EVENT

The traditional fall opening of activities for the Purchasing Agents Association of Tulsa was held at the Tulsa Club on Tuesday, September 9. As usual, Baker Oil Tools, Inc., played host, with R. C. Glover, Tulsa representative, handling all details. At the conclusion of dinner, drawings were held for prizes given by Baker Oil Tools and the Tulsa Association.

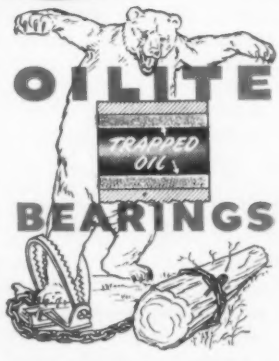
Showing of two outstanding films was the highlight of the program. The 20-minute full color, sound motion picture, "Industrial Purchasing", which had its premiere at the N.A.P.A. Convention in Atlantic City, was presented for the first time in the Southwest.

The motion picture, "Success Story", as it originally appeared on Richfield Oil Company's Southern California radio program was also shown. Included in the picture are views of the new million-dollar Baker plant, and interviews with company officials.



When Shortages Bedevil You Think of OILITE





Copyright 1952—The Chrysler Corp.

OILITE Finished Machine PARTS Assure YOU

- ★ No Tooling on Your Part.
- ★ Fast Delivery (Normally two (2) to six (6) weeks).
- ★ Accurate Parts (Machine Tool Tolerances).
- ★ Low Cost (Less than Machined Parts).
- ★ An Engineered Product.
- ★ Greater Freedom in Design.
- ★ Broad Range as to Size and Materials.
- ★ Consultation with Field Engineers.
- ★ The Benefit of More than Twenty (20) Years of Powder Metallurgy "KNOW-HOW."

We are told—"OILITE is the Favorite"

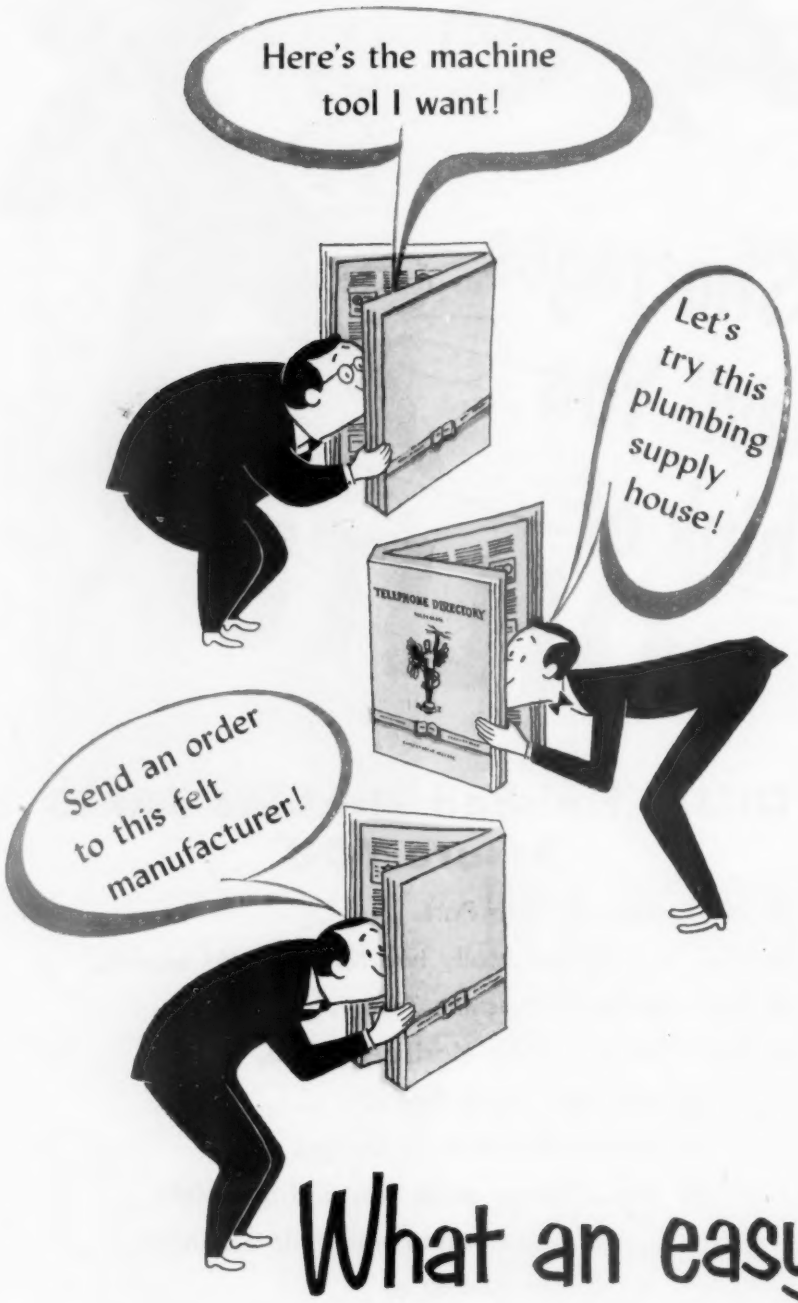
AMPLEX MANUFACTURING COMPANY

Subsidiary of Chrysler Corporation

Detroit 31, Michigan

FIELD ENGINEERS AND DEPOTS THROUGHOUT UNITED STATES AND CANADA

Oilite Products Include: Bearings, Finished Machine Parts, Cored and Solid Bars, Permanent Filters and Special Units.



What an easy way to find suppliers!

To locate a supplier... *or* to find his address... *or* his telephone number... *or* for a thumbnail description of the products or services he offers . . . purchasing agents are turning to the 'yellow pages' of the telephone directory.

A survey in Baltimore, Philadelphia and Pittsburgh among 217 purchasing agents showed 99% use the 'yellow pages' to find suppliers of new products or services. And 33% saved time by using the 'yellow pages' when placing repeat orders.

Get the 'yellow pages' habit! It's the quick, efficient way to buy!

BUFFALO ASSOCIATION OPENS ACTIVE SEASON

First meeting of the fall season for the Purchasing Agents Association of Buffalo, held at the Hotel Sheraton on Wednesday, September 10, featured a talk by Walter J. Thompson of the Niagara Mohawk Power Company.

Mr. Thompson, manager of advertising and publicity for the company, had as his subject, "More Power from Niagara." Mr. Thompson is also secretary of the five-company committee working on the private enterprise bill (Capehart-Miller) for the power development of Niagara Falls.

A second feature of the meeting was an explanation by Elizabeth Dorsey, head of the business and labor department of Grosvenor Library, of a new service being offered to business men by the library.

The Sales Executives Association of Buffalo invited all members of the Purchasing Agents Association, and the senior executives of western New York industry, commerce and banking to its September 26 meeting at the Hotel Statler. Guest speaker was General Clinton F. Robinson, president of the Carborundum Company. General Robinson's topic was "The President Looks at Sales."

The University of Buffalo is again conducting a course in "Purchasing and Procurement" with Robert W. Johnson as instructor. According to the association bulletin, plans are being made to improve the course over last year, with the discussion method of instruction, plus guest speakers from the Buffalo Association.

NICHOLSON CHIEF ADVISER FOR PURCHASING COURSE

The 20th annual Institute on Business Purchasing Policy and Practice was started at Marquette University, Milwaukee, in September, with Joseph Nicholson, purchasing agent for the City of Milwaukee, acting as chief adviser. The Milwaukee Association of Purchasing agents co-operates with the Institute. Wes. J. Budziszewski, chairman of the Association's education committee and assistant purchasing agent for Harnischfeger Corporation, Milwaukee, is the director for the course.

Mr. Nicholson is a past president of the National Purchasing Agents' Association. A number of large Milwaukee firms and organizations send their purchasing agents to the Institute as special lecturers each year.

SAGINAW VALLEY ASSN. OPENS FALL SEASON

The first fall meeting of the Saginaw Valley Purchasing Agents Association was held on Tuesday evening, September 9, at Saginaw, Mich. Guest speaker was E. J. Andrews, Vice President for District 4 of the National Association of Purchasing Agents.



FORD MOTOR COMPANY OFFICIALS INSPECT THE INTERCHANGEABLE UNITS OF THE . . .

New G-E Motor Control Center

Since January, over 10,000 men from production and management of leading industries (see above) have taken a thorough look at the latest equipment for the centralized control of a-c motors up to 200 hp. Their reports indicate enthusiastic approval of what they saw. Here's why:

VERSATILE. Because units are easily interchangeable without waste space, a variety of arrangements can be made. For example—two Size 1 or 2 starter units require the same space as a Size 1, 2, or 3 reversing starter.

ACCESSIBLE. A four-inch continuous wiring trough provides ample wiring space. Components are mounted on an easy-to-handle frame and accessible from all sides when lifted from cabinet. Starters are front-connected. Master terminal boards can be swung out of compartment for extra working space around conduit.

PROTECTED. Will withstand 25,000 amperes RMS short-circuit current, substantiated by certified Laboratory tests.

For more information on this new G-E motor control center, contact your nearest G-E apparatus sales office or write for Bulletin GEA-4979A today. *General Electric Company, Schenectady 5, N. Y.* 730-42

GENERAL ELECTRIC



EASY TO INSTALL AND INSPECT. Interchangeable units; main bus completely accessible; incoming line connections are easily made.



EASY TO WIRE. Four-inch wiring trough; components accessible from all sides; front-connected starters; doors swing more than 90°.



EASY TO SERVICE. Units are easily disconnected from bus and locked in test position (above). Barriers between units are easily removed to facilitate wiring (below).



Believe It or Not...
A Hurricane Sold Our P. A. on Metal Edge Packaging!



"After a severe coastal hurricane, our purchasing agent read in the papers about a great deal of merchandise damage in warehouses and stores. Basements were flooded, containers fell apart and large stocks were left in unsalable condition.

"That set him thinking—of course hurricanes are rare—but in the best of conditions our washer, nut and screw packages were vulnerable to moisture, label-loss, breakage and rough handling. He decided we needed 'all-the-way' protection for our products . . . the *best* packaging for our needs. He called a Metal Edge engineer, and they designed boxes that are both *extra strong* and *attractive* . . . real attention getters on dealers' shelves. And because there's no adhesives in these boxes, they'll really stand up in humid climates and we'll never have to worry about attacks from vermin."

NATIONAL METAL EDGE BOX CO.

PACKAGING • MATERIALS HANDLING • INVENTORY CONTROL

1214 Callowhill Street METAL EDGE *Philadelphia 7, Penna.*

DALLAS ASSOCIATION LISTS BUSY FALL PROGRAM

The Purchasing Agents Association of Dallas is in the midst of carrying out a value-packed fall meeting program. The new season opened on August 28, when the regular meeting was addressed by Eugene Butler, vice-president and editor of the "Progressive Farmer." Mr. Butler, recently returned from a trip abroad under the auspices of the Mutual Security Agency, spoke on "European Observations and Impressions."

On September 11, Ralph W. Rager, vice-president of the Oil Well Supply Company, was guest speaker on "Organization for Planned Procurement."

C. Warner McVicar, assistant vice-president of purchasing for Rockwell Manufacturing Company, Pittsburgh, was the speaker scheduled for the association's September 25 meeting at the Melrose Hotel. Mr. McVicar's topic was slated as "The Value of a Purchasing Manual to Purchasing and Management."

The program for the October 9 meeting, also at the Melrose Hotel, features an address by Dr. Arthur A. Smith, vice-president, First National Bank in Dallas. Dr. Smith's subject is "The Current Economic Outlook."

MacBURNEY GUEST AT M.P.A.C. MEETING

M. D. MacBurney, General Purchasing Agent, Barrett Division, Allied Chemical & Dye Corporation, was the guest speaker at the first monthly meeting of the season held by the Metropolitan Purchasing Agents Club. The meeting was held at the Midston House, New York City. Mr. MacBurney's subject was "Reports to Management."

TWIN CITY ASSOCIATION MEMBERSHIP GROWING

New members of the Twin City Association of Purchasing Agents recently announced include the following:

Earl Youngren, Green Giant Company, LeSueur, Minn.; John R. Johnson, Economics Laboratory, St. Paul, Minn.; Willard A. Steinfeldt, Wilson-Albrecht Company, Minneapolis, Minn.; John M. Peiffer, Nobles Engineering and Manufacturing Company, St. Paul; and Angus G. Pringle, Paper Supply Company, Minneapolis.

Joseph P. LaNasa replaces John J. McDevitt as Purchasing Agent for the City of St. Paul, and C. W. Norman replaces Charles E. McDonald for the Waterbury Company, Minneapolis.

A regular meeting of the association was held on Wednesday, September 10, at the St. Paul Athletic Club. Feature of the program was the showing of a color motion picture entitled "Life Line", presented through the courtesy of the MacWhyte Wire Rope Company. F. A. Galbraith, representing the company, gave a brief talk in conjunction with the film.

Parker

INDUSTRIAL TUBE FITTING

STOCKS CARRIED BY

AKRON, O.	B. W. Rogers Co. 850 So. High St. (9)
BALTIMORE, Md.	Carey Machinery & Supply Co. 3501 Brehms Lane (13) Whitehead Metal Products Co. 4300 E. Monument St. (5)
BEAUMONT, Tex.	Standard Brass & Mfg. Co. 705 Milam St.
BOSTON, Mass.	A. E. Borden Co., Inc. 176 Brookline Ave. (15)
BRYSON CITY, N. C.	Wallace Co. of Carolina P.O. Box 572
BUFFALO, N. Y.	Whitehead Metal Products Co. 2128 Elmwood Ave. (7)
CAMBRIDGE, Mass.	Whitehead Metal Products Co. 281 Albany St. (39)
CEDAR RAPIDS, Ia.	Globe Machinery & Supply Co. 309 8th Ave., S.E.
CHICAGO, Ill.	Wallace Tube Co. 1300 Diversey Parkway (14)
CINCINNATI, O.	Williams & Co. 3231 Fredonia Ave. (29)
CLEVELAND, O.	W. M. Pattison Supply Co. 777 Rockwell Ave. (14) B. W. Rogers Co. 1900 Euclid Ave. (15) Williams & Co. 3700 Perkins Ave. (14)
COLUMBUS, O.	Williams & Co. 851 Williams Ave. (8)
DALLAS, Tex.	Metal Goods Corp. 6211 Cedar Springs Rd. (9)
DAVENPORT, Ia.	Globe Machinery & Supply Co. 410 East Second St.
DAYTON, O.	J. N. Fauver Co. 1534 Keystone Ave. (10)
DENVER, Colo.	Metal Goods Corp. 2425 Walnut St. (2)
DES MOINES, Ia.	Globe Machinery & Supply Co. East First & Court Ave. (6)
DETROIT, Mich.	J. N. Fauver Co. 49 West Hancock St. (1)
HARRISON, N. J.	Whitehead Metal Products Co. 1000 South Fourth Ave.
HOUSTON, Tex.	Metal Goods Corp. 711 Milby St. (3) Standard Brass & Mfg. Co. 2018 Franklin St. (1)
INDIANAPOLIS, Ind.	Korhumel Steel & Aluminum Co. 1916 N. Meridian St. (2)
KANSAS CITY, Mo.	Metal Goods Corp. 1300 Burlington Ave. North Kansas City (16)
KNOXVILLE, Tenn.	Leinart Engineering Co. 412 E. 5th Ave. (5)
LOS ANGELES, Cal.	Haskel Engineering & Sup. Co. 721 W. Broadway, Glendale (4) Metropolitan Supply Co. 353 East 2nd St. (12)
MEMPHIS, Tenn.	J. E. Dilworth Co. 730 South Third St.
MILWAUKEE, Wis.	Morman Belting & Supply Co. 522 W. State St. (3) Wallace Companies of Wisconsin, Inc. 838 So. 6th St. (4)
MINNEAPOLIS, Minn.	Vincent Brass & Copper Co. 124 Twelfth Ave., So. (15)
NEW ORLEANS, La.	Metal Goods Corp. 432 Julia St. (13)
NEWPORT NEWS, Va.	Noland Company 27th St. & Virginia Ave.
NEW YORK, N. Y.	Whitehead Metal Products Co. 303 West 10th St. (14)
NORFOLK, Va.	R. W. Hudgins & Son 3 Commerce St. (10)
PHILADELPHIA, Pa.	Louis H. Hein Co. 15 West Lancaster Ave. Ardmore, Pa. Whitehead Metal Products Co. 1955 Hunting Park Ave. (40)
PITTSBURGH, Pa.	Williams & Co. 901 Pennsylvania Ave. (33)
PORTLAND, Ore.	Hydraulic Power Equipment Co. 2316 N. W. Savier St. (10)
ROANOKE, Va.	Noland Company 11 Salem Ave. (10)
ROCKFORD, Ill.	Rockford Tool & Transmission Co. 802 Broadway
SAN FRANCISCO, Cal.	General Machinery & Sup. Co. 1346 Folsom St. (3)
SEATTLE, Wash.	Eagle Metals Co. 4755 First Ave., South (4)
ST. LOUIS, Mo.	Metal Goods Corp. 5239 Brown Ave. (15)
SYRACUSE, N. Y.	Whitehead Metal Products Co. 207 West Taylor St. (4)
TOLEDO, O.	Williams & Co. 650 E. Woodruff Ave. (2)
TULSA, Okla.	Metal Goods Corp. 302 North Boston (3)
EXPORT	Mercator Corp. 438 Walnut St. Reading, Pa.
CANADA	Railway & Power Engineering Corp. Ltd.

STEEL OFFICIAL ASKS P.A.'s TO EMPHASIZE FREE MARKET

Leslie B. Worthington, president of United States Steel Supply Division, United States Steel Company, was the principal speaker at a meeting of the Purchasing Agents Association of Pittsburgh, held in the William Penn Hotel on September 16.

Mr. Worthington told the group that steel warehouse companies have had ample opportunity to help American ingenuity, in a free economy, create new businesses and new jobs. He called upon the purchasing agents to take every opportunity to emphasize the basic advantages of a free market. He said they should do this among their employees, in their communities and particularly by showing increasing interest in their local schools.

Most warehouse customers, Mr. Worthington pointed out, are small companies which are not able to order their steel requirements from the mills. Time after time, he said, his company had seen an individual, with little capital, but unlimited enthusiasm, launch a company to market a new product. As the demand for the new product increased, so did the company's requirements for steel. But marketing conditions have steadily changed.

Using an old nursery rhyme to illustrate the change, Mr. Worthington remarked that it is no longer possible to go to market "to buy a fat pig." In many countries, only a few ounces of bacon are available. In America, "the pig is still fat" but so wrapped in regulations and controls that its purchase is no longer easy or simple.

He noted that in the past, purchasing agents were called upon to use their ingenuity to get the best possible materials at the lowest possible price. Today, the same ingenuity must be applied in a different way. Purchasing agents must try to assure a steady supply of scarce materials while overcoming sudden shortages that hinder production. "Then, too, they must cope with many regulations and directives in the field of price and marketing controls."

The U. S. Steel executive pointed out that the "Cassandras" who are constantly demanding more controls are the same ones who predicted that the end of World War II would cause immediate dislocation and unemployment. "They had no faith and little understanding of the flexibility of American industry. They were wrong then and could be just as wrong today."

Denver Assn. Seeks Data On Members

PERSONNEL INFORMATION

(This information is for unofficial purposes to enable us to know each other better)

Name.....Home Address.....

Nickname..... Employed by.....

Position or Title.....

Previous Employment Record.....

.....

Military Record.....

Decorations or Honors.....

Memberships in Church, Lodge, Fraternity, and/or Professional or Other Groups:
(Please give present and past offices held in each)

.....

.....

.....

Name of Wife, and Names and Ages of Children.....

.....

Education: Names of High Schools and Colleges Attended, Degrees and Class Year:

.....

Hobbies and Interests.....

.....

Other information of general interest. (Here is where undue modest has no value)
Also, if you have information of general interest about other members, please
give us a "lead."

.....

.....

This is the form being distributed to members of the Purchasing Agents Association of Denver to provide interesting information so that each can know his fellow members a little better.



PERSISTENT IN PERFECTION . . .

Your goal is a perfect job. Only the best of materials, the most careful workmanship, and the finest of tools are good enough for you. And you are quick to recognize the work of other *real* mechanics who, like yourself, are persistent in perfection.

Perfection is the standard to which Bonney wrenches are made. Mechanics call them America's finest—unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them . . . the pride of the men who use them. When you buy wrenches, buy Bonney.

BONNEY TOOLS

Persistent in perfection, refrigeration equipment manufacturers like Carrier, Frick, Norge, York, Refrigeration Corporation of America have revolutionized the processing and preservation of food.

BONNEY FORGE & TOOL WORKS • ALLENTOWN, PENNSYLVANIA

LOUISVILLE, NEW ORLEANS IN DIST. 7 ATTENDANCE CONTEST

The Purchasing Agents Association of New Orleans has accepted a challenge from the Purchasing Agents Association of Louisville to top the latter's attendance record at District 7 conferences when the next meeting is held in Atlanta on October 20 and 21. George Bosworth, Purchasing Agent for the City of New Orleans and recently appointed chairman of the association's District Activities Committee is leading the "On to Atlanta" campaign, assisted by Eddie Schlessinger. What the prize will be in the contest is still a secret, but will probably be enjoyed by all concerned.

Mr. Bosworth, a past president of the association and past national director, succeeds George Gabler in the Activities Committee post.

The September 8 meeting of the New Orleans Association, held in the St. Charles Hotel, featured an address by John Minor Wisdom, attorney. His subject was "The Republican National Convention."

CHICAGO ASSOCIATION HEARS JESSOP STEEL CO. PRESIDENT

The Purchasing Agents Association of Chicago held its regular monthly meeting at the Hotel Sherman on Thursday evening, September 11. Guest speaker was Frank B. Rackley, 35-year old president of the Jessop Steel Company, and a prominent member of the National Young Presidents' Organization, a group of men who have headed million-dollar organizations before reaching the age of 39. Last year he was nominated "Young Man of the Year" by the Pittsburgh and Washington Junior Chambers of Commerce for his spectacular success in production improvement and employe relations.

Mr. Rackley's topic was, "Trade—Our American Heritage."

CLEVELAND ASSOCIATION HOLDS FATHERS-SONS-DAUGHTERS NIGHT

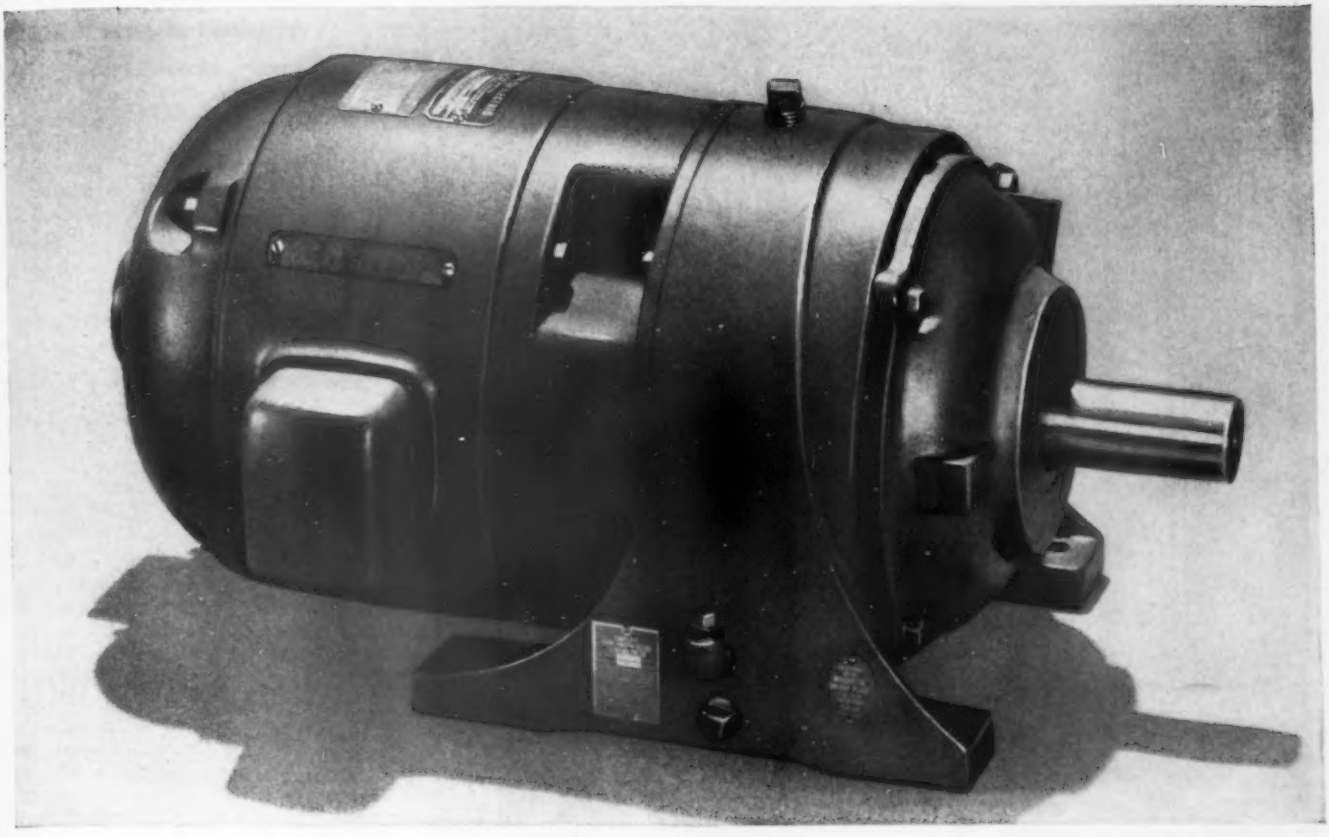
A Fathers-Sons-Daughters Night meeting was held by the Purchasing Agents Association of Cleveland at the Hotel Cleveland ballroom on Thursday evening, September 18. Featured speaker was Jimmy Dudley. Music was supplied by Gene Beecher's Orchestra, and a special program of entertainment was offered.

BANKER GUEST SPEAKER AT DENVER ASSN. MEETING

A regular meeting of the Purchasing Agents Association of Denver was held on Thursday, September 11, at the Brown Palace Hotel. Guest speaker was Albert N. Williams, Sr., president of U. S. National Bank of Denver. Mr. Williams' subject was "America at Mid-Century."

An interesting development in associa-

(*Please turn to page* 214)



G.E. Announces Improved Gear-motor Design

Maintenance costs and time cut more than 50% by new gear-motor

General Electric's improved gear-motor is a single unit —a superior low-speed drive, now redesigned to further reduce maintenance costs. Here's how!

STATOR REMOVAL may now be accomplished without disturbing the gear train in any way. Simply remove the endshield, the four bolts which secure the stator, and pull off the stator. Because this is part of the complete line of *standard* G-E motors, you can use *any* G-E motor stator of the same size as a replacement.

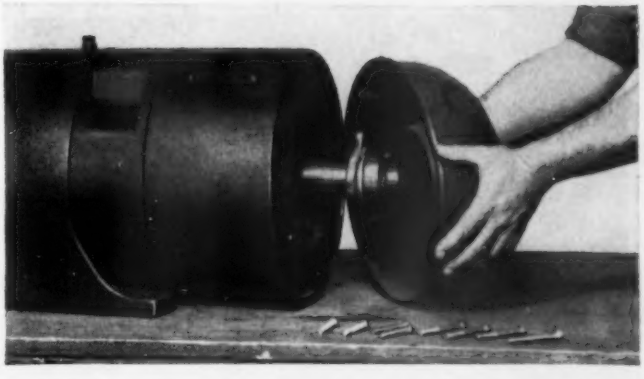
TRI-CLAD* MOTORS—the most reliable, most widely-accepted motors available—are now an integral part of *every* G-E gear-motor, either open or totally enclosed. All open gear-motors have dripproof construction.

PROMPT SHIPMENT is made possible by G.E.'s new stocking plan, which keeps popular ratings stocked at multiple points throughout the country. In addition, over 250 models are now on a one-week shipping schedule from the factory.

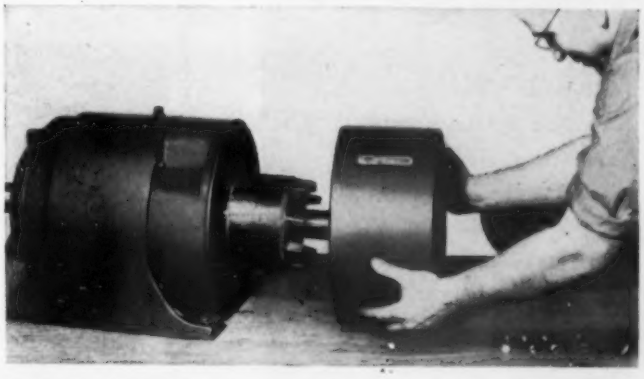
G-E gear-motors, being single units, are easier to install and maintain than motors coupled to separate, external gear reducers. They're available in standard enclosures to fit any application. Order your G-E gear-motor through your nearest G-E Apparatus Sales Office, or your Authorized G-E Agent or Distributor. General Electric Company, Schenectady 5, N. Y. 755-9

*Reg. trade mark of General Electric Co.

GENERAL ELECTRIC



ENDSHIELD REMOVAL is a simple matter. Remove the bearing-cap and endshield bolts, and lift the endshield from the stator.



STATOR REMOVAL now consists of just removing the four stator bolts and slipping the stator from the gear-motor housing.



Blake & Johnson is headquarters for patented **Twin-Fast®** twin-thread wood screws now available with Phillips head as well as slotted round, flat and oval heads—in brass and steel, bright finished—in all standard lengths and diameters and some special sizes; others to order.

The complete line of Blake & Johnson fastenings includes machine screws, stove bolts, tapping screws, special headed products, nuts, rivets, chaplets, wire forms, and automatic screw machine products... in steel, brass and other alloy metals.

BLAKE & JOHNSON SINCE 1849

WATERVILLE 48, CONNECTICUT

Write for new catalog ▶

(*Continued from page 212*)

tion personnel work is the blank being sent out to all members to get personal information about them. The information is for unofficial purposes and is designed to enable members to know each other better. The blank being sent out is reproduced elsewhere in this section.

* * *

SEVENTH DISTRICT CONFERENCE TO BE HELD AT BILTMORE HOTEL, ATLANTA, OCT. 20-21

The ninth annual conference of the 7th District, Purchasing Agents of the Southeast, N.A.P.A., will be held at the Biltmore Hotel, Atlanta, Ga., on October 20 and 21.

The conference will open on Monday morning, October 20, with a call to order by R. N. Patrick, general chairman. He will be followed by Hon. Wm. B. Hartsfield, Mayor of Atlanta, extending the welcome of the city. C. L. Newton, president of the Purchasing Agents Association of Georgia, will extend greetings to the delegates.

The business session will feature the following: The New South, a talk by Harlee Branch, Jr., president of the Georgia Power Co.; Public Relations, a talk by Nelson J. Gibbins, chairman of the N.A.P.A. Committee on Public Relations; Purchasing in the New South, a panel discussion moderated by Fred E. Lind, New Orleans.

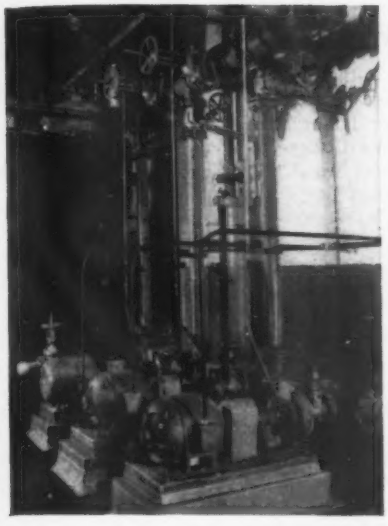
W. S. Flinn, Vice President for District Seven, will open the afternoon meeting with an address on highlights of district activities. He will then introduce H. W. Christensen, president of the National Association of Purchasing Agents. The Education Hour following will be under the direction of N.A.P.A. past president H. F. Jones, chairman of the national associations committee on education. J. H. Foote, president of Commonwealth Associates will then speak on Standardization, followed by a speaker from the Phelps Dodge Copper Co. on Copper.

The annual banquet will be held on Monday evening, with C. L. Newton presiding. J. E. Clark, purchasing agent for Gulf Oil Corporation, Atlanta, will be master of ceremonies. Address of the evening will be given by Warren Foster of the Coca-Cola Company.

Tuesday morning's session will feature the following: an address by Stuart F. Heinritz, Editor of Purchasing, followed by the film "Industrial Purchasing"; an address by John A. Sibley, chairman of the board, Trust Company of Georgia; From One P.A. to Another, George A. Renard, Secretary-Treasurer, National Association of Purchasing Agents.

USE READER SERVICE COUPON ON PAGE 19 TO BRING YOUR CATALOG FILES UP-TO-DATE

The tougher the valve the better in making rayon textiles



To produce the quality rayon made by Industrial Rayon Corporation's Painesville, Ohio, plant requires the handling of some mighty corrosive solutions in vital continuous processing operations.

That's where four hundred *corrosion-resistant* ALOYCO gate valves, like you see above, play a vital role . . . operating *without maintenance*, though many were installed three and a half years ago.

This record, unmatched by any other valve in this service, means *money saved* to Industrial Rayon . . . practically no downtime for valve repair or replacement, longer valve life.

If you handle corrosive fluids of any kind, you'll benefit by doing business with the *specialist* that engineers corrosion-resistant valves *alone*—ALOYCO. You'll save, as thousands of satisfied ALOYCO customers have, including Colgate-Palmolive-Peet Company, Standard Oil Company of Indiana, Tennessee Eastman Corporation, Carbide & Carbon Chemicals Corporation, General Aniline & Film Corporation.

May we suggest that you call our *Aloyco Corrosion Clinic*, at no obligation, for expert consultation and engineering service. It is available to you for "diagnosis" and "treatment" of problems involving valves vs. corrosives.

ALLOY STEEL PRODUCTS CO., INC.
1312 West Elizabeth Avenue, Linden, N. J.

Longer Lasting

ALOYCO VALVES

1st in Corrosive Service



Lasts longer in corrosive service

ALOYCO "Teflon" seated valv have been specifically engineered to correct characteristic weaknesses commonly found in small valves used the process industries. Like all ALOYC valves, the trouble-free performance these valves is the result of extensive metallurgical research and engineeri and production of high alloy valves exclusively.

ALOYCO No. 62 "Teflon" Seated Valve has three outstanding features: (1) molded renewable "Teflon" seats, (2) outside stem threads, (3) union bonnet construction.





watchmen can't guard every corner at once . . . but

Anchor Fence Does

WITH Anchor Fence on the job, your plant buildings and grounds are *completely* protected, *day and night!* Trespassers, snoopers, thieves, agitators and trouble-makers of all kinds can't get in! Anchor Fence is truly everywhere at once, always "awake," always on guard!

In addition, an Anchor Chain Link Fence enables you to make full use of outdoor space for storing materials and supplies . . . freeing valuable factory space and reducing the need for new construction. And you can control traffic in and out of your plant more efficiently!

What's more, Anchor Fence gives you *long-lasting* protection. Deep-Driven Anchors hold the fence permanently erect and in line in any soil or weather, yet permit relocation at any future time. "Squar-Form" corner posts and square frame gates of "Squar-Form" tube steel are other exclusive features that make genuine Anchor Fence your best buy!

WRITE FOR FREE CATALOG! Address: ANCHOR POST PRODUCTS, INC., *Fence Div.*, 6615 Eastern Ave., Baltimore 24, Md.

Anchor Fence

Nation-wide Sales and Erecting Service

COLLEGE OFFICIAL GUEST OF SYRACUSE ASSN.

A regular meeting of the Purchasing Agents Association of Syracuse and Central New York was held on September 24 at the Onondaga Hotel.

Guest speaker was Dr. Wesley Northridge Haines, assistant to the president, Keuka College, Keuka Park, N. Y. His subject was, "Your Best Relations Are Human."

NOTABLE SPEAKERS AT SOUTHWEST CONFERENCE

Outstanding leaders in purchasing and business in general were among the speakers listed for the Sixth Annual Southwest Purchasing Conference held on October 1 and 2 at the Broadview Hotel, Wichita, Kan.

On the program were: H. W. Christensen, president of the National Associa- of Purchasing Agents on "Activities of N.A.P.A."; George Renard, secretary-treasurer of N.A.P.A., "From One P.A. to Another"; Thomas D. Jolly, vice-president and director of purchasing for the Aluminum Company of America, on "Standardization"; Tom Orr, executive secretary of the Kansas Independent Oil and Gas Association; on "Freedom Is Your Job"; Harold Null, president of Harold Null Investment Co., "Economic Factors Affecting Current and Future Price Levels"; Addison I. West, resident attorney for Cessna Aircraft Co., "Legal Aspects of Purchasing"; Gerald Pearson, director of extension classes and centers for the University of Kansas, "Purchasing Education"; David L. MacFarlane, president of State Teachers College at Emporia, gave the banquet address. H. C. Lumb, assistant general counsel of the Republic Steel Corporation, spoke on "Labor and Business Relations in 1953" and N. W. Faust of the Texas Company, spoke on "Chemicals in the Petroleum Industry."

STANDARDS IN PURCHASING NEW YORK ASSN. TOPIC

A regular meeting of the Purchasing Agents Association of New York was held at the Builders Exchange Club on Tuesday, September 16.

Guest speaker at the afternoon forum session was Cyril Ainsworth, technical director of the American Standards Association. Mr. Ainsworth, a national authority, spoke on "Standards in Purchasing."

Guest speaker at the dinner session was Walter H. Britnell, service engineer for the New York Telephone Company. Speaking on the subject, "30 Minutes for Survival", Mr. Britnell told the story of how modern science provides a half-hour warning of enemy air attack. He demonstrated latest developments in radar and black light.



Mrs. Tucker's foods get dependable shipments
—plus effective trademark display with

Rheemcote

55-GALLON POSTER DRUMS

PERFECT INSIDE AND OUT!

INSIDE . . . Through constant research, Rheem continues to develop specially prepared container linings for products which cannot be shipped safely in ordinary steel containers. For the manufacturer of new products, Rheem laboratory facilities are fully equipped to test the product and to recommend a suitable lining.

and OUTSIDE . . . Rheemcote containers can be lithographed in any number of colors, any design, including halftones. Decorations like the diagonal stripe on this VELVET drum are possible only with the exclusive Rheemcote process. The high-gloss finish is tough, long-lasting.

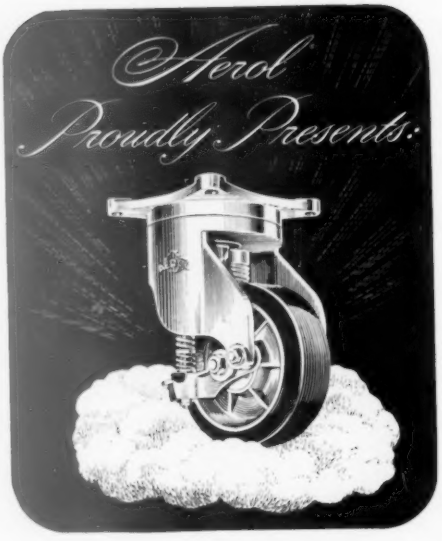
Your product . . . your trademark gains extra prestige and new sales opportunities when dramatically presented in Rheemcote drums. Inside and out, Rheemcote offers a sure way to build new customers and new sales. Write for free colorful booklet on this powerful new advertising medium. Rheem Manufacturing Company, General Sales Offices, 570 Lexington Avenue, New York 22, N. Y.

SELL as you SHIP with Rheemcote DRUMS

RHEEM MANUFACTURING COMPANY · *Manufacturing Plants in 22 Cities Around the World*

CALIFORNIA: DOWNEY, NEWARK, RICHMOND, SAN PABLO, SOUTH GATE • ILLINOIS: CHICAGO • LOUISIANA: NEW ORLEANS • MARYLAND: SPARROWS POINT • NEW JERSEY: BURLINGTON, LINDEN • TEXAS: HOUSTON • **FOREIGN PLANTS**—ARGENTINA: BUENOS AIRES • AUSTRALIA: BRISBANE, FREMANTLE, MELBOURNE, SYDNEY • BRAZIL: RIO DE JANEIRO • CANADA: HAMILTON • ITALY: MILAN • PERU: LIMA • SINGAPORE • UNITED KINGDOM: BRISTOL

© 1952 RHEEM MFG. CO.



THE WORLD'S *finest* SHOCK-ABSORBING WHEEL AND CASTER

At last, here is a shock-absorbing wheel and caster that *actually* provides MAXIMUM shock absorption under any condition—even when truck or dolly is completely empty.

Aerol's new controlled knee-action unit is a completely trouble-free combination of light and heavy commercial standard springs. They will never unwind, fatigue or pop. Undue wear or breakage caused by "gyrating casters" is completely eliminated by the light spring which takes the stress when truck is empty or near empty—the heavy spring is for maximum or near maximum loads. Both springs can easily be replaced to convert unit to a different load capacity.

Available in the following sizes: 6"-8"-10" standard duty—10" x 12" heavy duty and 10"-12" dual wheels. Aerol-sealed and "lubricated for life"!

Aerol wheels and casters are available at dealers throughout the United States and Canada . . .
Please consult your local telephone book for further information.

CONCENTRATE ON **aerol**

AEROL CO., INC.
2424 SAN FERNANDO ROAD
LOS ANGELES 65, CALIFORNIA

NO WHEEL ROLLS LIKE AN AEROL

Heat Pumps Operate Down Through Zero

Single Thermostat Determines Whether Pump is Used for Cooling or Heating

In the winter of 1950-51, a three-hp. air-to-air heat pump was thoroughly tested, primarily for mechanical performance. With that experience in hand three new units—two 5's and a 3—incorporating several improvements were built. These are in actual service in homes in Florida, Texas, and Virginia this winter to accumulate heating and cooling performance under various conditions of weather.

Tests on the earlier unit show that the frosting problem is not as serious as was thought it might be. Thus, it is not necessary to apply heat at low temperatures to prevent frosting. Also, it is found that the practical limiting temperature of operation is not around freezing but that the unit can be operated continuously down through zero—but with declining heat delivery, of course. If heat delivery reaches a predetermined minimum, resistance heaters provide additional heat to maintain comfort.

In these heat pumps a single thermostat determines whether the heat pump is used to cool the room air, to warm it, or whether supplemental heat from the



Single thermostat control heat pump. (Westinghouse photo.)

resistance elements is needed. The pump operation is changed from heating to cooling by a simple four-way automatic valve. Because this valve employs slots in a piston it offers almost no restriction to gas flow compared with valves employing valve stems and seats to uncover ports.

Use Atomic Radiation in Lubrication Research

Scientists Aim to Develop Lubricants Capable of Preventing Gear Wear Under High Speed and Extreme Pressure Conditions

The life of tomorrow's automobiles, industrial tools and other machines may be lengthened because of today's ingenious application of atomic radiation in lubricating oil research.

The Emeryville, California, laboratories of Shell Development Company, research affiliate of Shell Oil, have been engaged for some time in testing the wear of machinery gears under various lubrication conditions. But until recently it was a slow and tedious job. Every gear had to be carefully weighed and examined microscopically, both before and after testing it with a lubricant.

Now, by using radioactive gears, the testing process has been vastly simplified and speeded up. The new method is much more accurate, too. It works like this:

The Shell scientists send their gears to the nation's number one atomic pile at Oak Ridge, Tennessee. The atomic energy technicians there bombard the parts with neutrons and rush the "hot" gears back to Emeryville.

A "hot" gear is meshed with an ordinary gear and run on a wear test machine, with different types of oils used as lubricants. As microscopic particles of radioactive metal are worn away, they are measured by Geiger counters on the oil stream. The amount of radioactivity indicates accurately the amount of wear.

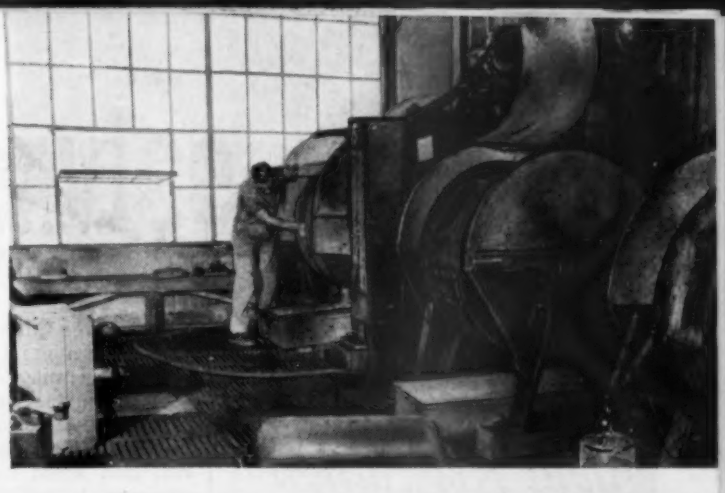
Ordinary photographic film is also placed next to the ordinary gear later. If "hot" particles have been transferred to the "cold" gear's metal, indicating that the lubricating oil has failed to separate the gear-teeth, the fact shows up on the film.

Through such information, according to M. E. Spaght, president, Shell Development Company hopes to develop new lubricants capable of preventing gear wear under the high-speed and extreme pressure conditions characteristic of today's production machinery.

According to Spaght, Emeryville is the only private research laboratory known to employ radioactive gears in its experimental work. He also pointed out that special precautions must be taken in the use and storage of the "hot" gears to prevent possible radiation injuries.

SECONDARY OPERATIONS

These pictures show only a few of the many secondary operations available at Alcoa. Below—one of Alcoa's heat-treating furnaces and quenching baths. At right—applying a ball burnish finish to parts in tumbling barrels. Other secondary operations include: burring, tapping, thread rolling, drilling, milling, slotting, press forming, stamping, marking, plus all types of mechanical and chemical finishes.







SCREW MACHINE CAPACITY at Alcoa includes turret lathes, single- and multiple-spindle automatics.

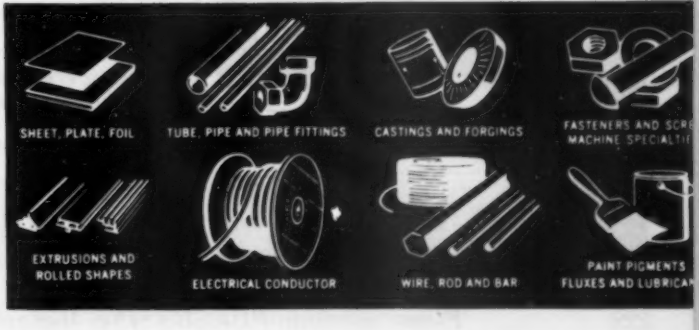


CONSTANT INSPECTION OF TOOLS AND GAGES assures delivery of parts within the tolerances you specify.



ASK ALCOA FIRST WHATEVER YOUR NEED IN ALUMINUM

Your local Alcoa sales office is headquarters for "everything" in aluminum. Look for Alcoa under "Aluminum" in your classified phone book.

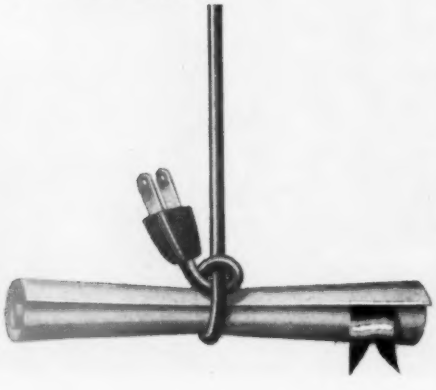


Pittsburgh 19, Pennsylvania

ALCOA

If you make electrical equipment Your Reputation hangs upon a Cord

Every electrical tool or appliance is only as good as its cord. Provide your products with a guarantee of long and useful service by equipping them with DYNAPRENE flexible cords. DYNAPRENE is jacketed with a special tire-tread neoprene compound that is the result of years of research and experience. DYNAPRENE is the tougher cord that has tremendous resistance to abrasion as well as all the other good qualities you get in neoprene. DYNAPRENE is more flexible and stands up under hard usage.



Be sure to specify Whitney Blake type SO, SJO and SV-type neoprene jacket for your flexible cord requirements.

WHITNEY BLAKE CO.

WB WELL BUILT WIRES SINCE 1899

NEW HAVEN 14, CONN.

Cylinder Metallizing Job Saves $16,000

Chrome Stainless Application Eliminates Need for Reboring and Fitting with Oversize Pistons and Rings

This large Mid-West chemical plant has fourteen gas engines in compressor service, operating 24 hours a day. Most of these engines are 300 hp 8 cylinder, 11½" bore, 28" stroke—fuel is a mixture of hydrogen, methane and air, with charcoal dust added to increase combustion efficiency. In addition to the 8 cylinders driving the engines, each has 4 horizontal compression cylinders which are hooked into the same crankshaft, compressing from 0 to 650 psi.



$19,200 was saved over the cost of new cylinders.

After nine years of continuous use, with shutdowns for inspections and overhaul not more than once every 18 to 24 months, the engines began to show signs of wear in the top third of the combustion cylinders, caused by heat and the abrasive in the fuel.

Three methods of reconditioning these engines were available: 1. The cylinders could be replaced and standard sizes of other components preserved, at a cost of $450 per cylinder; 2. The cylinders could be rebored and fitted with oversized pistons and rings, at $400 per cylinder. (With this method, each engine would eventually have different size bores, ratios would be off-standard, cylinder walls weaker and parts no longer interchangeable. Repeated reborings would have made new cylinders eventually necessary). 3. Metallizing, at $150 per cylinder, even allowing for the purchase of a horizontal boring mill and a vertical honing machine, plus a shop-made rig for pre-heating the cylinders before and during spraying.

Cylinders are bored, threaded, grit-blasted, degreased and sprayed with a high chrome stainless steel, 20 to 30 lbs. being applied depending on the condition of the cylinder. Cylinders are then finish-machined and honed to size.

The operator pointed out that whereas it had been customary on comparable jobs to allow .010" closer fit than the desired finish size, to allow for break-ins, that this allowance was unnecessary with the metallized stainless steel. The .010" of break-in wear simply did not take place with stainless steel which had to be removed to exact size before assembling.

The first year, 64 cylinders were resurfaced at a total savings of about $16,000 over the unsatisfactory method of reboring and fitting with oversized rings and pistons. $19,200 was saved over the cost of new cylinders. Past experience with the greater particle hardness of sprayed metal, its better lubrication characteristics, and a superiority of the stainless steel surface over the original cast cylinders, lead this user to estimate that the rebuilt cylinders are good for another 15 years of operation. Over 60% more than the original life before reconditioning.

SPDA ISSUES LEAFLET ON MACHINING PLASTICS

Among recent leaflets issued by the Small Defense Plants Administration, Old Washington Post Building, 1337 E St., N.W., Washington, D. C., is one on Machining Plastics. This technical aid leaflet is the first of two in a subseries now being prepared on plastics. The machining of plastics requires the special design of standard tools, if the necessary operations are to be performed efficiently, economically and accurately, SPDA explained. Just how these changes should be made for the various types of plastics are discussed in detail for such machining operations as drilling, turning, milling, and threading and tapping.

Another Technical Aid leaflet deals with the Proper Alignment of machine tools; sharpening of drills, lathe tools and milling cutters; care of belt, chain and gear drives; sharpening certain metal cutting tools used in machine shops; precision measurement of workpieces; selecting the right tool steel; machining aluminum, and metallizing.

Copies of the leaflets are available from SPDA field offices.

* * *

BENZENE PRODUCTION TO DOUBLE THROUGH USE OF PETROLEUM

The nation's supply of benzene, vital industrial chemical which has been in critically short supply, will soon be doubled thanks to increased production from petroleum sources, according to Dr. M. E. Spaght, president of Shell Development Company. As recently as 1949, the U. S. could produce only 156,000,000 gallons of benzene a year, obtained from the steel industry as a by-product of converting coal into coke. Now the petroleum industry is planning or actually building plants capable of producing an equal amount.

Fast Motor Service Wherever You Are



ALLIS-CHALMERS "Certified" SERVICE

Factory approved motor service in every industrial area from 97 Allis-Chalmers Certified Service Shops.

ALABAMA
Birmingham—Elec. Repair & Serv. Co.
Montgomery—Standard Electric

ARIZONA
Bisbee—Copper Electric Co. Inc.
Phoenix—Daley Electric Company

CALIFORNIA
San Diego—Calif. Elec. Works
Los Angeles—Larsen-Hogue Elec. Co.
Oakland—T. L. Rosenberg Co.
San Francisco—Weidenthal-Gostiner

COLORADO
Denver—Baker Electric Company

CONNECTICUT
Hartford—Charles H. Leppert
Waterbury—Elec. Motor Repair Co.

FLORIDA
Jacksonville—Turner Electric Works
Miami—Peninsular Armature Works
Tampa—Tampa Armature Works

GEORGIA
Albany—Georgia Electric Co.
Atlanta—Bearden-Thompson Elec. Co.
Columbus—Smith-Gray Electric Co.

ILLINOIS
Chicago—Chicago Electric Co.
Marion—Giles Armature & Elec. Wks.
Mt. Vernon—Dowzer Electric

INDIANA
Indianapolis—Scherer Electric Co.
Evansville—Evansville Elec. & Mfg. Co.

IOWA
Sioux City—Smith Elec. & Supply Co.

KANSAS
Salina—Cent. Kans. Elec. Mach. Co.
Wichita—Tarrant Electric Mach. Co.

LOUISIANA
New Orleans—Industrial Elec., Inc.
Shreveport—Shreveport Arm. & Elec.

MAINE
Brewer—Stanley J. Leen Co.

MARYLAND
Baltimore—Keystone Electric Co.

MASSACHUSETTS
Lawrence—Roland B. Glines Co.
Roslindale—Ranney Electric Motors
Springfield—Elec. Motor Repair Co.

MICHIGAN
Detroit—Stocker Electric Company
Grand Rapids—Grand Rapids Ind. Elec.
Saginaw—Banning Elect. Prod. Corp.

MINNESOTA
Duluth—Mielke Electric Works
Minneapolis—Parsons Elec. Co.

MISSISSIPPI
Vicksburg—Ludke Electric Co., Inc.

MISSOURI
Kansas City—Boese-Hilburn Elec. Co.
St. Louis—French-Gerleman Elec. Co.
Springfield—Springfield Elec. Serv.

NEBRASKA
Omaha—Omaha Electrical Works

NEW HAMPSHIRE
Concord—A. S. Tracy

NEW JERSEY
Atlantic City—Charles A. Buckley
Paterson—Elec. Service Repair Co.
Trenton—Lockwood Elec. Motor Serv.

NEW MEXICO
Albuquerque—Electric Motor Company
Powell Electric Co.

NEW YORK
Buffalo—Robertson Electric Co.
Jamestown—A. E. Westburgh
Mt. Vernon—H. A. Schreck, Inc.
New York—Consol. Elec. Motor Co.
Rochester—Vanderlinde Elec. Corp.
Utica—Mather, Evans & Diehl Co.
Watertown—Watertown Elec., Inc.

NORTH CAROLINA
Charlotte—Southern Elec. Service Co.
Greensboro—Southern Elec. Serv. Co.
Rocky Mount—Hammond Elec. Co.

OHIO
Cincinnati—Cincinnati Elec. Equip. Electric Service Co.
Akron—A-C Supply Co.
Toledo—Romanoff Elec. Motor Serv.
Youngstown—Winkle Electric Co.

OKLAHOMA
Miami—Miami Armature Works
Oklahoma City—Southwest Elec. Co.
Tulsa—Smith-Milligan Electric Co.

OREGON
Eugene—Kalen Electric & Mach. Co.
Portland—Milwaukee Mach. Co.

PENNSYLVANIA
Johnstown—Universal Elec. Mfg. Co.
Osceola Mills—Mid-State Elec. Eng. Co.
Philadelphia—Elec. App. & Repair Co.
Pittsburgh—Penn. Elec. Coil Corp.
York—Industrial Electric Company

SOUTH CAROLINA
Greenville—Southern Elec. Serv. Co.
Spartanburg—Southern Elec. Serv. Co.

SOUTH DAKOTA
Sioux Falls—Electric Motor Repair

TENNESSEE
Columbia—Middle Tenn. Arm. Wks.
LaFollette—Standard Arm. Works
Memphis—Indus. Elec. & Supply Co.

TEXAS
Amarillo—G. E. Jones Elec. Co.
Beaumont—Elec. Mach. & Repair
Dallas—Industrial Elec. Equipment Co.
El Paso—B & M Machinery Co.
Fort Worth—Central Electric Co.
Houston—Roy A. Berentz Co.
Sweetwater—Sweetwater Electric Co.

UTAH
Salt Lake City—Diamond Electric

VIRGINIA
Richmond—Wingfield & Hundley
Roanoke—Virginia Armature Co.

WASHINGTON
Spokane—Lee F. Austin Company

WEST VIRGINIA
Charleston—Charleston Elec. Supply
Fairmont—Central Elec. Repair Co.

WISCONSIN
Baraboo—Utility Transformer Equip. Co.
Green Bay—Beemster Electric Co.
Milwaukee—Dietz Electric Co.
Wausau—Electric Motor Service
Wisconsin Rapids—Staub's Elec. Wks.

ALLIS-CHALMERS CERTIFIED SERVICE SHOPS are independent service shops which have met rigid standards for ability, experience, equipment and business integrity. They use factory approved methods and parts and do your work promptly at a fair price.

Of course, Allis-Chalmers Certified Service Shops give good service on any electrical equipment, of any make. Tear out this ad and save it, or write the name of the A-C Certified Service Shop nearest you in your address book. Allis-Chalmers, Milwaukee 1, Wisconsin. A-3864

Texrope and *Vari-Pitch* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

Sold . . .
Applied . . .
Serviced . . .

by Allis-Chalmers Authorized Distributors, Certified Service Shops and Sales Offices throughout the country.



CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.





PUMPS — Integral types from ¾ in. to 72 in. discharge and up.

AT YOUR SERVICE **2 NEW Shenango bulletins**



. . . on symmetrical or annular parts, ferrous and non-ferrous

IF your plans call for bushings, liners, sleeves, rings, rolls, or *any* essentially symmetrical shape, find out about the many advantages you stand to gain with Shenango centrifugally cast parts.

BULLETIN NO. 150 covers non-ferrous parts in manganese and aluminum bronzes, red bronzes, brass, Monel Metal and special alloys.

BULLETIN NO. 151 covers parts of Meehanite Metal, Ni-Resist and special iron alloys.

These new bulletins show typical Shenango produced parts that are saving time, trouble and cost in industries everywhere. Get the facts. Either or both bulletins are yours for the asking.

SHENANGO-PENN MOLD COMPANY
Centrifugal Castings Division
Dover, Ohio
Executive Offices: Pittsburgh, Pa.

SHENANGO
ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • MEEHANITE® METAL

EMERY ANNOUNCES CHANGES IN AIRFREIGHT SERVICE

A new Expedited Airfreight Tariff containing two major changes was recently announced by Emery Air Freight Corporation. The new tariff shows that rates on shipment of over 1000 pounds have been reduced, in some cases as much as 22%, the reductions being made possible by expanded volume in this type of service and to increased operating efficiency.

The tariff also sets forth a new assembly service which consolidates and forwards, in one lot, all air shipments for one consignee that are ready on any one day in a single city—or nearby area—and delivers them as a single shipment to the consignee at a little more than single shipment rates. This new service, it is pointed out, will be of assistance to procurement executives with several sources of supply in one or more of the 27 metropolitan areas served by the new service. For example, a New York manufacturer with component parts suppliers in Chicago, Evanston, Gary and Whiting who would normally make separate air shipments of the components to New York every day, can now simply notify the suppliers and Emery's New York office to ship via the assembly service each day. Emery's Chicago office then would make daily consolidation of shipments from these four vendors at its Chicago terminal, forwarding the shipment in one lump consignment to the New York manufacturer at reduced rates.

* * *

COMMITTEE APPOINTED TO STUDY POST-DEFENSE MARKETS

Secretary of Commerce Charles Sawyer recently announced the formation of an advisoray committee of nineteen outstanding business economists to serve in connection with the study of post-defense markets which the Department of Commerce has undertaken in cooperation with the Committee for Economic Development.

In announcing that acceptances were received from all who were invited to serve on the committee, Secretary Sawyer said:

"Keeping the amazing productive capacity of the United States at work after the present defense build-up has been completed will be the job of private enterprise. To do that job well businessmen will need authentic information on the potential markets for goods and services which will be available or may be developed for a civilian peacetime economy. The Department of Commerce study is designed to provide such information and the advisory committee I have named will help insure that the study will be useful and practical. The study will be published by January 1, 1953 so as to provide adequate time to assist business in preparing for potential markets which may be utilized at such later time as defense production has leveled off from its peak."

The committee held its first meeting in Washington on September 16.

New G-E Rapid Start lamp needs no starter, cuts maintenance



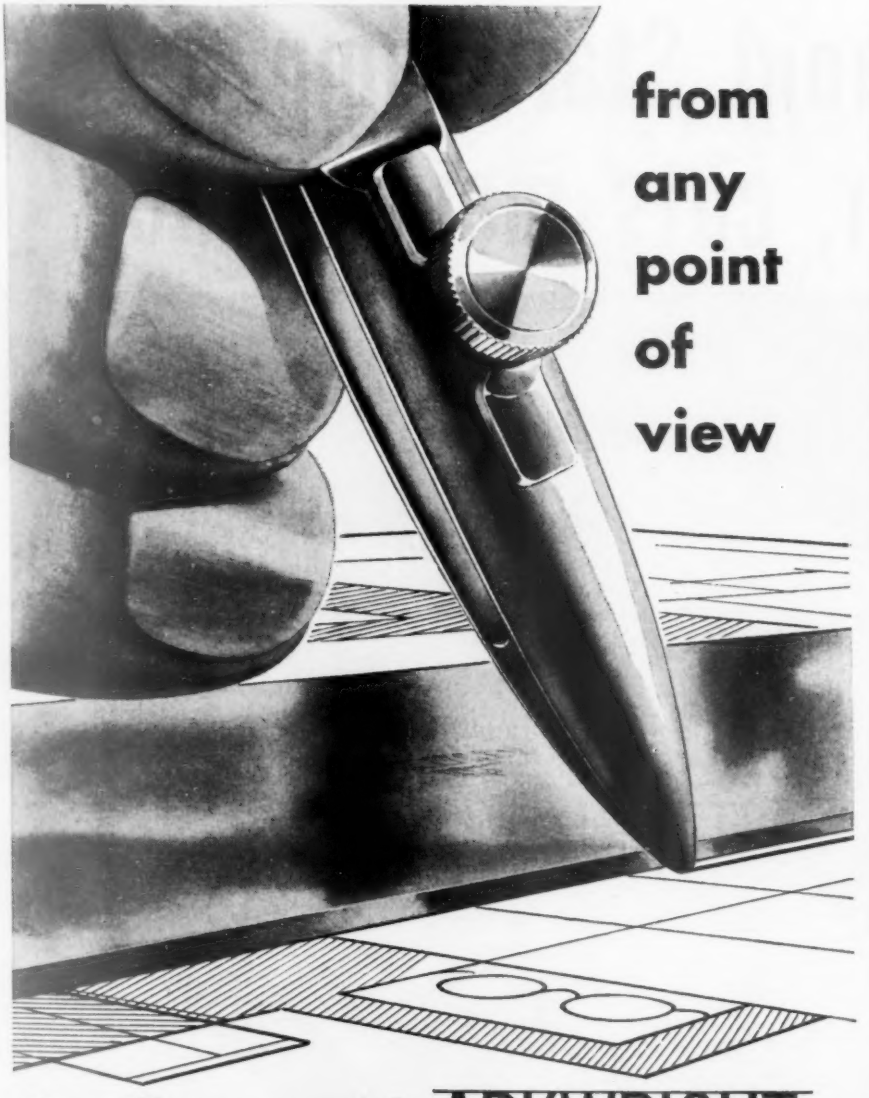
IN THE NEW RAPID START lamp circuit G-E has been able to eliminate the starter required in standard lamps to pre-heat the cathode. For that reason, maintenance is even easier, more economical than before.

This new General Electric *Rapid Start* lamp was made possible by two G-E developments: an improved triple-coil cathode that replaces the double coil in standard fluorescent lamps, and a *Rapid Start* ballast. Together, they give General Electric *Rapid Start* lamps almost instant starting and smooth, simple operation.

G-E *Rapid Start* fluorescent lamps are rapidly becoming available. Many leading fluorescent lighting fixture manufacturers are incorporating the new lamps and ballasts in their latest equipment. These two newest developments of G-E research are another reason why you can *expect* the best value from General Electric fluorescent lamps.

You can put your confidence in—

GENERAL ELECTRIC



You'll save with ARKWRIGHT

Arkwright Tracing Cloths are made to help you do your best work more easily.

Arkwright cloth saves time. There's never a pinhole, uneven yarn or other imperfection to slow you down.

Arkwright cloth saves trouble. You can draw over erasures time and again and not have an ink line "feather".

Arkwright cloth saves money. If needed, you can get clean, ghost-free reproduction from a drawing years after you make it—years after paper or inferior cloth would have turned brittle and opaque with age.

Wouldn't you like to see for yourself why Arkwright Tracing Cloth is best? Write for samples to Arkwright Finishing Co., Industrial Trust Bldg., Providence, R. I



ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 30 YEARS

FOWLER CITES IMPROVEMENT IN ALUMINUM, COPPER SUPPLY

Existing supplies of aluminum and copper are presently sufficient to meet all the important needs of both national defense and the civilian economy, according to information contained in Issue No. 8 of the Defense Production Administration's "List of Basic Materials and Alternates."

The list also shows that for the first time since the institution of controls, both of these metals are on approximate balance with defense and essential civilian demand.

Comments on Outlook

Commenting on the outlook for controlled materials, DPA Administrator Henry H. Fowler said that copper supplies have improved to the extent that most of the formerly prohibited uses are now permitted, and allotment percentages have been increased. He also foresees the possibility of full allotments for the majority of civilian needs as early as the second quarter of 1953.

Mr. Fowler added that aluminum should be in easy supply by January 1954, despite delay in completion of new facilities, and the over-all loss of as much as 100 million pounds, caused by the recent steel strike.

SOUND-COLOR MOTION PICTURE ON WATTHOUR METER DESIGN

A new, 16-mm sound-color motion picture describing design developments, manufacturing techniques, and quality control procedures in the production of G. E. 1-50 watthour meters, is announced by the company's Meter & Instrument Department. Titled "Accent on Accuracy", the film demonstrates the principles, history and maintenance problems of the various watthour meters. Animated sequences show meter operation, and how the 1-50 floating disk operates.

WOOL FELT COMMERCIAL STANDARD

Commercial Standard 185-52, Wool Felt, applicable to types of felt put up roll form and suitable for mechanical use, known as mechanical roll felt; to sheet felts which are customarily fabricated individually from square batts of carded stock; and to roll felts for the apparel and decorative trades, is announced by the Commodity Standards Division, Bureau of Foreign and Domestic Commerce, Washington. The standard includes thicknesses and weights, with permissible tolerances, chemical and physical requirements, and methods of test. It does not include punched, woven, synthetically bonded, stitched, quilted, or paper felts, or other materials of felt-like appearance, which are products of entirely different construction.

Standard CS 185-52 is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10¢ per copy.

new.....

ready to use.....

speedy.....



3M EXTRUDED SEALERS

Here's a valuable new addition to the 3M line of automotive products . . . 3M extruded sealers.

3M extruded sealers come in a variety of sizes, ready-made for fast, hand application on your production line. 3M extruded sealers eliminate the need for pressure extruding equipment and make possible a quick, on-the-spot seal. *And*, if you need a special shape extrusion, 3M will die-cut one to your specifications!

An additional feature of some 3M extruded sealers is their expansion when heated. These sealers swell about *50% under heat* and cure to tough, rubber, gasket-like seals especially valuable when faying surfaces are irregular, and a completely tight seal is necessary. These sealers give a high degree of adhesion, and can be painted over handily.

Ask your 3M salesman to show you his line of extruded sealers . . . they are tailor made for the auto industry. Like all 3M products, extruded sealers are *engineered* for top quality and performance, ready to do a bang-up job for you! For more information about 3M extruded sealers write 3M, Dept. 710, 411 Piquette Ave., Detroit 2, Mich.

FIFTIETH ANNIVERSARY · 3M COMPANY · 1902 ★ 1952

ADHESIVES • COATINGS • SEALERS

MINNESOTA MINING AND MANUFACTURING COMPANY • ADHESIVES AND COATINGS DIVISION

411 PIQUETTE AVE., DETROIT 2, MICH.

GENERAL SALES OFFICE: ST. PAUL 6, MINN. • EXPORT OFFICE: 270 PARK AVE., NEW YORK 17, N. Y. • IN CANADA: LONDON, CANADA

MAKERS OF "SCOTCH" BRAND PRESSURE-SENSITIVE ADHESIVE TAPES • "SCOTCH" BRAND SOUND RECORDING TAPE • "SCOTCHLITE" BRAND REFLECTIVE SHEETINGS • "3M" ABRASIVE PAPER AND CLOTH • "3M" ADHESIVES AND COATINGS • "3M" ROOFING GRANULES • "3M" CHEMICALS

You Need Burlap! We Have it!

and here are 4 reasons why Bemis is Your Best Burlap Source . . .



1 You Benefit from Our Large Operations

Bemis is the largest burlap importer. Whatever the supply situation, Bemis customers are in the most favorable position.

2 You Benefit from Our Knowledge of Quality of Burlap

For many years, producers and users alike have accepted Bemis' grading of Indian burlap as the standard for the industry.

3 You Benefit from Our Knowledge of the Burlap Market

We follow the market daily in our regular operations.

4 You Benefit from Bemis' Large Facilities

Sixteen plants and seventeen additional sales offices, all strategically located, assure you a dependable source of supply.

Bemis is headquarters for all grades and weights of burlap . . . including widely-used 10-oz., and the popular, special-finish Angus, which only Bemis imports.

BEMIS BRO. BAG COMPANY

Bemis

Baltimore • Boise • Boston • Brooklyn • Buffalo • Chicago
Charlotte • Cleveland • Denver • Detroit • Indianapolis
Houston • Jacksonville, Fla. • Kansas City • Los Angeles
Louisville • Minneapolis • New Orleans • New York City
Memphis • Norfolk • Oklahoma City • Omaha • Phoenix
Philadelphia • Pittsburgh • Salt Lake City • San Francisco
St. Louis • Salina • Seattle • Vancouver, Wash. • Wichita

AUTHORIZE ACQUISITION OF FOREIGN AND USED STEEL

To enable manufacturers to supplement their steel reserves during the coming months when the results of the recent steel stoppage are expected to be felt most keenly, Henry H. Fowler, Administrator of the National Production Authority, recently authorized steel consumers to acquire and use foreign and used steel free of allotment restrictions of the Controlled Materials Plan.

In taking the action, which is in the form of an amendment to Direction 4 to CMP Regulation 1, Mr. Fowler said: "This measure represents a further effort on the part of NPA to minimize the impact of the steel stoppage to American Industry during the period of reduced steel supply which is anticipated during the fourth quarter of 1952 and the first quarter of 1953. The revision of Direction 4 is closely tied to recent NPA actions which gave manufacturers and contractors the right to buy and use carbon conversion steel free of allotment restrictions. The measure will provide industry with further sources of supply during the period within which additional steel supplies will be most needed.

The amendment provides among other things that any person may acquire foreign and used steel to produce Class A and B products without charging it against his authorized allotment. Used steel is defined as material which has been utilized in production or construction, including offal and steel salvaged from scrap.

MICROFILM CAMERA IDEAL FOR RECORDING RECEIVING SLIPS

Use of its 20-pound, completely portable and motorized 16mm. microfilm camera in receiving departments of factories, warehouses and stores is reported by the Flofilm Division of Diebond, Inc., Norwalk, Conn. The camera requires no more desk space than a portable typewriter. One of the features of the camera is the daylight loading of the film magazine which contains enough 16mm. film to record 1600 letters of correspondence 8½" x 11". It is possible to remove a partly used roll of film at any time and replace it in the camera at any time to finish using it, thereby conserving film and keeping photographed material in sequence.

AVOIDING BOILER TUBE CORROSION DISCUSSED IN NEW BULLETIN

Corrosion as a major factor in shortening the life of boiler tubes is thoroughly discussed in an illustrated article published by The Tubular Products Division of The Babcock & Wilcox Company, Alliance, Ohio. The article, TR-514, indicates that, in low pressure boilers, corrosion is the largest single cause for replacement of boiler tubes. It points out the various types and causes of corrosion and offers a number of general rules to follow to get maximum service life for boiler tubing.

A Real Bargain...

AB-I CIRCUIT BREAKERS

Simple arithmetic proves our point. After a fault, anyone can safely "Reset" a Westinghouse AB-I Circuit Breaker in seconds. But, replacement of elements in other types of circuit-protective devices really eats into valuable production time.

Count up replacement elements over a year... then multiply by the length of time each replacement took. This is the output you lose, the time that men and machines have stood idle.

In sharp contrast, with AB-I Circuit Breakers a workman simply turns the breaker handle to "Reset" and back to "On" to restore service. He isn't exposed to live parts, the trip-free breaker merely trips again if the fault continues.

Other exclusive AB-I features, such as "De-ion®" Arc Quenching, quick-make, quick-break tripping and exact, tamperproof calibration further prove Westinghouse AB-I Circuit Breakers are a real bargain in protection and savings.

See for yourself. Call your Westinghouse Distributor or write for B-5456, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-30090



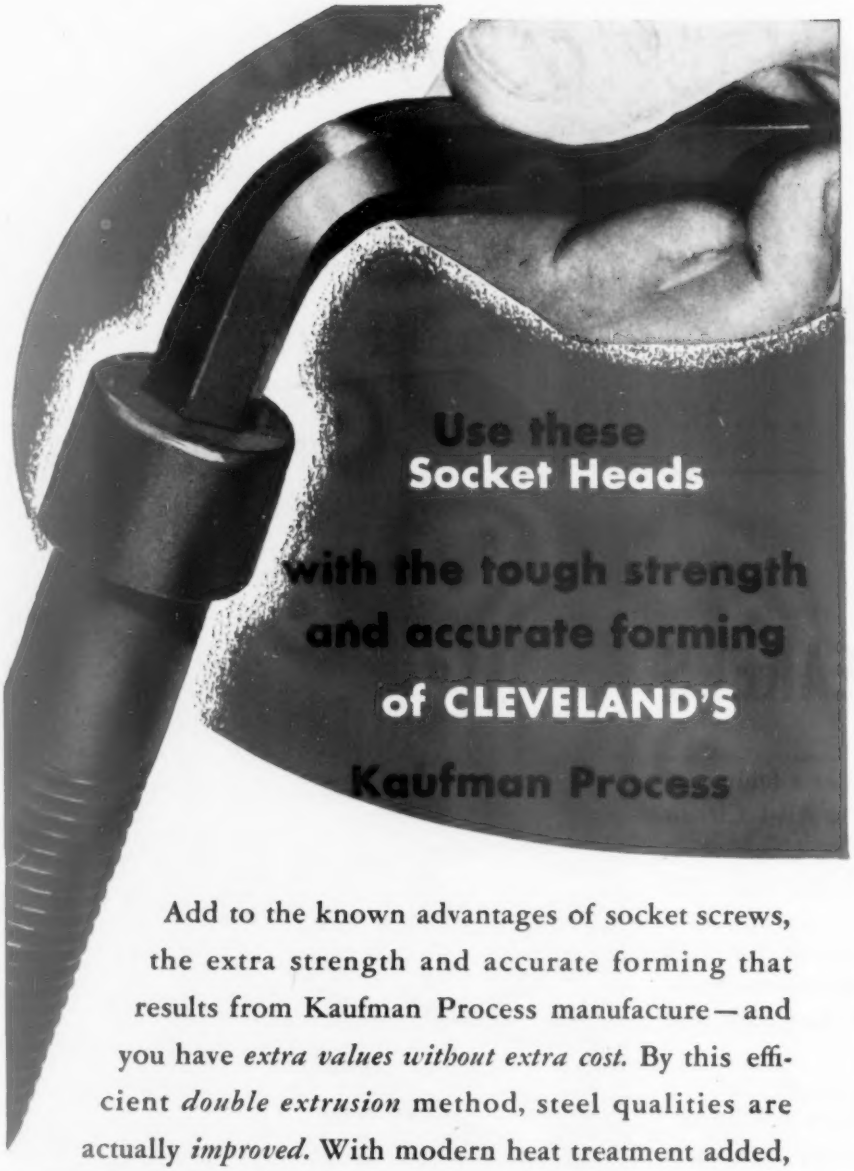
YOU CAN BE SURE...IF IT'S

Westinghouse

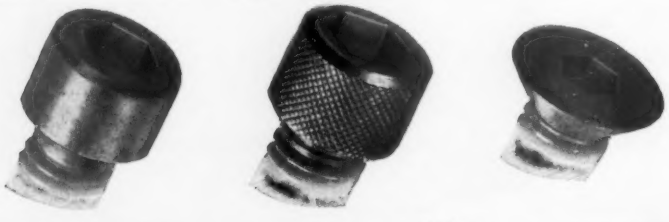
AB-I Circuit Breakers

THE COMPLETE LINE

"Of course, circuit breakers save money."



Add to the known advantages of socket screws, the extra strength and accurate forming that results from Kaufman Process manufacture—and you have *extra values without extra cost.* By this efficient *double extrusion* method, steel qualities are actually *improved.* With modern heat treatment added, Cleveland Socket Screws are *extra tough.* And the true hex sockets, formed in one operation, are clean all the way to the bottom with sharp corners that give firm purchase to the key. It pays you to specify and buy Cleveland Socket Head Screws.



CLEVELAND *Top Quality* FASTENERS

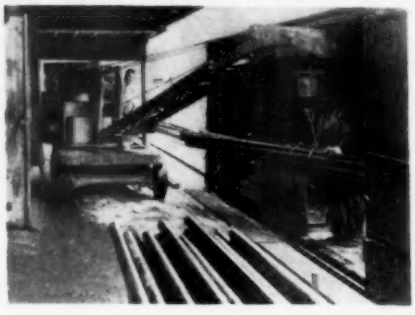
THE CLEVELAND CAP SCREW COMPANY
2922 East 79th Street, Cleveland 4, Ohio

originators of the Kaufman DOUBLE EXTRUSION Process

CRANE TRUCK CUTS MANHOURS 60%

Unloading 20 ft. lengths of tube steel stock from boxcars with 6 ft. door openings is like getting 10 pounds of flour into an 8 pound sack: both problems require a tricky solution.

National Acme Company, Cleveland solves the unloading puzzler with a crane truck that snakes bundled loads of the steel through boxcar doors at an angle, while a laborer guides the bundle



Four men were previously needed to unload car of tubes.

into its proper spot on the shipping dock after hooking it on inside the car. Before it started using the crane, National had four men doing this work manually—hauling the tubes one-at-a-time out of the cars.

Now two men (one in the car, the other operating the crane) empty a car in less time than it used to take four laborers. The crane cuts manhour requirements by 60% and helps National head off smashed-finger accidents.

CORROSION-RESISTANT PLASTIC PIPING

A complete line of corrosion-resistant plastic piping, tubing, and ducting for use in industry, agriculture, and building is announced by the American Agile Corporation, New Bedford, Ohio.

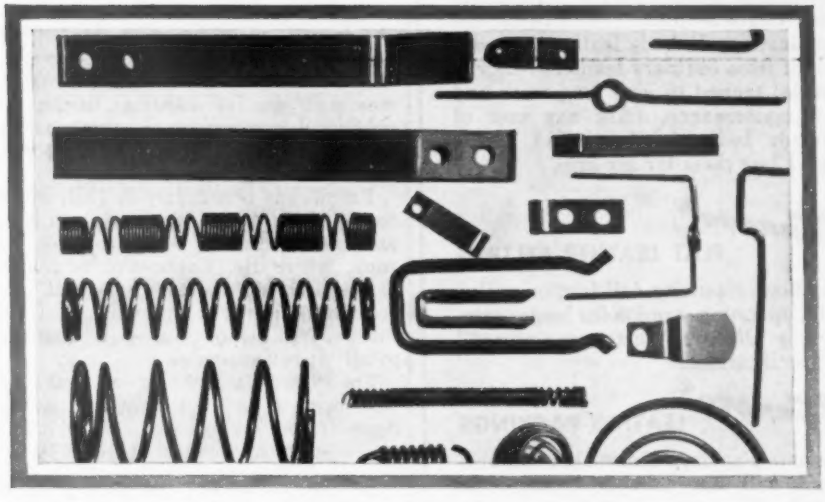
Piping in various grades of polyethylene, both unplasticized and rigid polyvinyl chloride, and also of the rigid rubber-resin types are furnished in diameters up to 6-inch nominal pipe size. Ducting in polyethylene is available in an assortment of standard sizes up to 22" diameter.

The line of corrosion-resistant plastics pipe is complemented with a full supply of pipe fittings which permit simple installation of new, entirely plastic pipe lines, both of the flexible and rigid type, as well as the incorporation of plastic pipe sections and fittings into existing pipe lines.

The complete line of corrosion-resistant pipe covers a wide range of applications where corrosive liquids are handled, upto a temperature of about 175° F. The ducts permit the safe handling of liquids and gases ranging from concentrated hydrofluoric acid to extremely dilute waste waters of various industrial processes. In addition to the outstanding chemical properties the excellent mechanical and electrical properties as well as their light weight make this piping excellent conduit material for various electrical and electronic application.

SEYMOUR PHOSPHOR BRONZE

THE METAL THAT RETAINS ITS RESILIENCE FOR YEARS AND YEARS AND YEARS

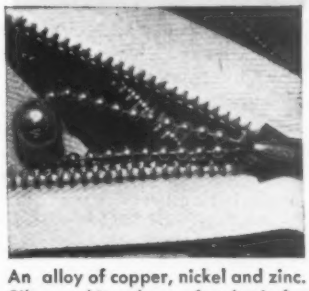


Ever since it was discovered, years ago, that a mere fraction of a percent of phosphorus in a melt of copper-tin bronze made it extremely tough, resilient and corrosion-resistant, *phosphor bronze* has been the "wonder metal" in industry.

Seymour Phosphor Bronze, in which these properties have been developed to a high point, is universally used for contact springs in electric snap switches, because such springs will "snap" hundreds of thousands of times without failure. This performance, plus the ability to function in salt air and gas-laden surroundings, makes Seymour Phosphor Bronze highly valuable elsewhere in industry.

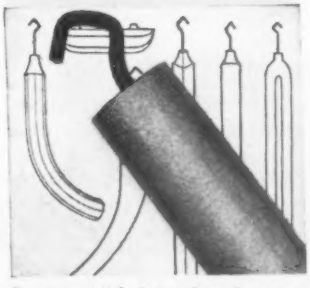
If you have a problem Seymour Phosphor Bronze might solve, our engineers are at your service, or we will send you samples for test. Made in sheet, wire and rod.

NICKEL SILVER



An alloy of copper, nickel and zinc. Silvery white, the perfect basis for flatware. Capable of a wide range of ductilities, therefore ideal for deep draws without anneals.

NICKEL ANODES



Seymour Nickel Anodes give even deposit with minimum sludge because the grain is precision-controlled during the melt, and each melt has laboratory supervision. Use them with Seymour Bright Nickel Bath wherever time is money!

SEYMOUR

Nonferrous alloys since 1878

THE SEYMOUR MANUFACTURING COMPANY
SEYMOUR, CONN.



"I know what I'm getting when I order

RHOADS

INDUSTRIAL LEATHERS"

Ever get the proud feeling of a job well done? I get it every time I order Rhoads Industrial Leathers. Like my "custom-tailored" suit, Rhoads leathers are "custom-engineered" to fit the application; Rhoads leathers are different from ordinary leathers—they're special tanned to give long wear and low maintenance. (Ask any user of Rhoads Industrial Leathers.) That's why I buy them for my firm.

Tannate®

FLAT LEATHER BELTING

Combines elasticity, full-friction pulley grip, operating stamina for longer service; is *all-ways* "custom-engineered" to specifications.

Tannate®

LEATHER PACKINGS

Tannate Packings resist abrasion and wear, will not cold flow, score or abrade. Recommended for a wide range of temperatures, pressures, and mediums.

Tannate®

UNI-PULL DRIVE

For short center drives, Tannate Leather Belting together with a tension controlling base, provides maximum delivery of power.

Call in a Rhoads Sales Engineer
Write: J. E. RHOADS & SONS
35 North Sixth St., Phila. 6, Pa.

250 YEARS
PRODUCING FINE LEATHERS

J. E. RHOADS & SONS
PHILADELPHIA • NEW YORK
CHICAGO • ATLANTA

Devise Method for Indicating Hardening Characteristics of Steel Compositions

New Method Also Makes it Possible to Design Steel of Desired Characteristics from Available Materials

A tool to help improve defense production has been made available, free of cost, to all American manufacturers of steel, United States Steel announced recently.

Research officials explained that the "tool" is not a "gadget," but a patented method for predicting in advance the hardening characteristics of steel compositions. As varying degrees of "hardenability" are indexes to the usefulness of steel for specific tasks, this knowledge will enable operating men to produce the types of steel that will exactly suit such diverse assignments as tough tank armor, strong struts for aircraft, brittle fragmentation bombs, or easily formable cases for shells.

Conversely, the patented method makes possible the design of steels of required hardening characteristics from the available supply of steelmaking materials. Since many alloying elements normally used for special steels are now in short supply and others would be short if war blocked world sea lanes, the new method will be of great assistance in making maximum use of existing supplies of traditional elements or of other elements that may be substituted to give approximately the same service.

Patent was issued July 3, 1951, in the name of Marcus A. Grossmann, and assigned to United States Steel Company, where Dr. Grossmann is adviser in research planning. The patent was recently dedicated to the public by U. S. Steel. This action makes it available to all interested parties.

The "hardenability" of a steel, Dr. Grossmann asserted, is measured as the depth from the surface to which a given steel composition hardens when quenched. Steel men have known for many years that hardenability in general depends on the chemical composition of a steel—the quantities of various ingredients, such as carbon, manganese, molybdenum, chromium, nickel and others, that are added to iron to make different kinds of steel. By careful experiments and tests of his results, Dr. Grossmann was able to to assign definite hardenability values to these elements. By now great tonnages of steel have proved the validity of his findings.

"In the past," Dr. Grossmann said, "we knew roughly which alloying elements improve the hardenability of steels. Now by multiplying the hardening factors, we arrive at a closer approximation. This knowledge helps to rationalize and inject order in our metallurgical planning.

"The most important use of the patent is in conserving our dwindling supplies of certain scarce alloying materials. In one column we can set down the hardenability we need for a given job, as in defense production. In a parallel column we set down the quantities of alloying elements we have to work with. With this information and the new data we can then design steels of required hardenability from our available materials."

Dr. Grossman achieved high professional honors when he presented his new information before the technical societies in various papers. The American Society for Metals awarded him its Sauveur Achievement Award. The American Institute of Mining and Metallurgical Engineers gave him its Hunt Gold Medal.

NEW EQUIPMENT DEVELOPMENTS TO FEATURE POWER SHOW

The results of extensive development work on new equipment for power plants will come into view for the first time at the 20th National Exposition of Power and Mechanical Engineering in Grand Central Palace, New York, December 1 to 6 this year. Also on public display for the first time will be many examples of equipment brought out since the last exposition, but only just reaching the stage of full production. The show, celebrating its 30th anniversary, is being held under the auspices of the American Society of Mechanical Engineers, at the time of the Society's annual meeting.

One great source of new material in this year's Power Show will be the special technologies secretly evolved during the last war and only now emerging in advanced commercial applications. Another source will be the special adjustments of design and adaptation of materials required to meet restrictions imposed by the nation's present limited defense production program.

There will be on view many new varieties of structural engineering materials and items of power plant and processing equipment in which they are being employed for the first time. Specialties for the power plant are multiplying rapidly and exhibitors are planning to feature numerous such devices as special attractions to point up their displays.

The exposition is under the management of the International Exposition Co., with headquarters in New York. Charles F. Roth, exposition manager, and E. K. Stevens, associate manager, are in charge.

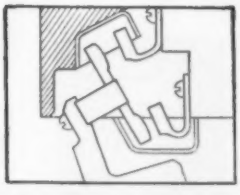
See how the maintenance has been engineered out with modern *Life-Lines*

Forget your previous ideas of motor and control maintenance. The advanced design of Life-Line motors and Life-Linestarters sets new lows in maintenance. Excessive maintenance has been engineered out—in advance.

Take the Life-Linestarter for example: There are fewer moving parts. Operation is simple. No complex linkage in contact closing arrangement. No sliding surfaces. No hinge pins. Contacts, too, are protected by the exclusive deionizing principle of arc extinction—the most efficient method devised. Contact burning is minimized—contact maintenance engineered out!

And the Life-Line motor has set new standards for motor manufacturers. Pre-lubricated bearings do away with lubrication maintenance. Heavy structural steel gives new strength . . . provides more torque per pound. New stator slots and insulating material add years of maintenance-free service.

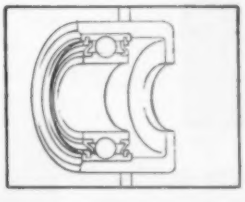
Summed up—what is really engineered and built into Life-Lines is simply—more service on the job—less servicing, and down time. Ask your Westinghouse representative to show you proof that Life-Line motors and Life-Linestarters are the equipment built to match the high productivity requirements of today's industry. A call to your local office will bring you fast service, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21696



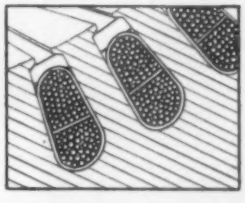
STARTER *Exclusive "De-ion®" Arc Quencher* confines, divides, extinguishes hot arcs fast!



Never Jams. No sliding surfaces to wear—no sticking—no jamming—nothing to wear or replace.



MOTOR *Needs No Lubrication.* Pre-lubricated factory-sealed bearings eliminate troubles due to over or under lubrication, dust and dirt.



Cuts Winding Burnouts. Pear-shaped slot design eliminates pockets. No corner voids remain to collect dirt, moisture.

YOU CAN BE SURE...IF IT'S Westinghouse

Life-Line MOTORS and CONTROLS

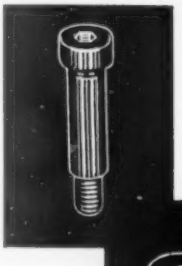
BLUE DEVIL
SOCKET SCREW PRODUCTS



Cap Screw

finest

Whether your application is delicate precision apparatus or huge rugged machine tools, you'll find no finer socket screws on the market than Blue Devil! Write today for the complete Triple-Ess Catalog . . . or see your distributor.



Stripper Bolt



Flat Head Cap Screw



Pipe Plug



Set Screw

SAFETY SOCKET SCREW COMPANY
6502 AVONDALE AVENUE • CHICAGO 31, ILLINOIS

SOLD THROUGH AUTHORIZED INDUSTRIAL DISTRIBUTORS



Actual cross-section photo shows structural continuity of Blue Devil cap screw from body to head.

SOCKET SCREWS EXCLUSIVELY!

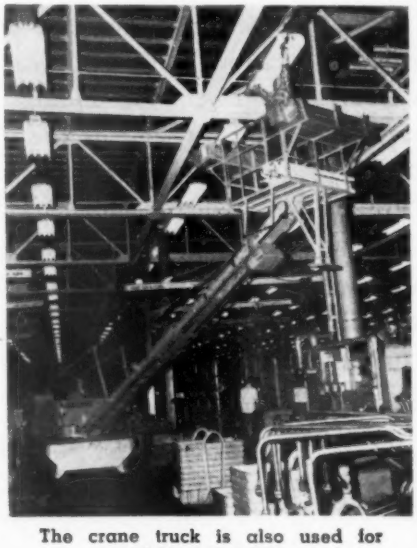


NEW YORK SEAPORT SUBJECT OF COLOR MOTION PICTURE

New color motion picture entitled "Via Port of New York", is being developed for the Port of New York Authority, New York, N. Y. The 28-minute film pictures the problem of handling in the New York and New Jersey Port District, the millions of tons of goods and wares consigned to and arriving from every part of the globe. The film takes the viewers aboard an incoming freighter with the pilot and thereafter cover every step of cargo handling until trucks and freight cars carry it away. The picture is scheduled for release in January, 1953.

MAINTENANCE GOES OVER WITH A "BOOM"

Illustration shows 6,000 lb. capacity Yale electric crane truck equipped with a new type articulated platform for faster, easier maintenance of lighting and other overhead equipment at new plant of



The crane truck is also used for outdoor maintenance.

the Caterpillar Tractor Co., Joliet, Ill. The crane can position the boom and platform for overhead work above machine tools and other obstacles, in locations difficult to reach by other means. The boom can be extended in lengths up to 19 feet and swung in a 270° arc.

ANNOUNCE 1952 EDITION OF MINES REGISTER

The 1952 issue of the Mines Register, (Volume 24), is announced by Atlas Publishing Co., 425 West 25th Street, New York 1, N. Y. It contains the latest available information on close to 7,000 active mining companies in the Western Hemisphere that produce precious, semi-precious and non-ferrous metals. It gives the location of the mines, history of the company, names and addresses of officers and mining personnel, purchasing agents, financial data, equipment and production, and other information. The price of the book is $25.00. Its size is 6" x 9", 772 pages, clothbound.



Thorough Lubrication Improves Metal Cutting, too!

In machining . . . as in shaving . . . it's mighty important to get an effective mixture of water and lubricant to the cutting edge of the tool!

To carry away the damaging heat caused by friction in metal cutting, nothing works faster than water. But more than a coolant is needed. *Lubricity* is also essential to reduce the heat generated while the chip is being removed. Moreover, to keep chip and tool from "bonding" together, and to prevent metal build-up on the face of the tool, a good cutting fluid contains *anti-welding* properties as well.

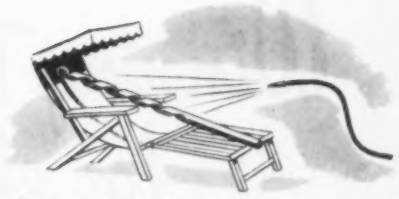
All three factors—cooling, lubricity and anti-welding—are present to a high degree in Houghton cutting oils, both water soluble and straight. All provide the exceptional qualities that mean trouble-free machining and longer tool life.

For further information, ask the Houghton Man when he calls at your plant. Or write to E. F. Houghton & Co., Philadelphia 33, Pa., for latest bulletins.

E. F. HOUGHTON & CO.
PHILADELPHIA • CHICAGO • DETROIT • SAN FRANCISCO



Ready to give you on-the-job service . . .



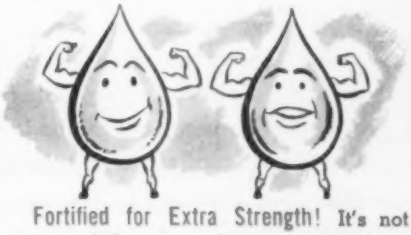
Beat the Heat! Cutting tools last longer when you put *Antisep All-Purpose Base* on the job. When mixed as much as one part to 30 of water, this full-bodied cutting base carries heat away faster—provides extra high film strength and anti-welding protection. It will meet over 90% of your machining needs.



Good Start – Better Finish! Grinding wheels hold up longer and produce a better finish when *Houghto-Grind* is used. Special additive keeps wheels clean and prevents rusting of the work piece. *Houghto-Grind* can help you maintain the top grinding efficiency you want.



No Week-End Odor! Bacteria growth and resulting rancidity are averted when *Antisep Soluble Oil* is used. Like its popular "brother"—Antisep All-Purpose Base—this popular grinding and cutting fluid has antiseptic properties that protect workers against skin irritation, keeps machines sweet and clean.

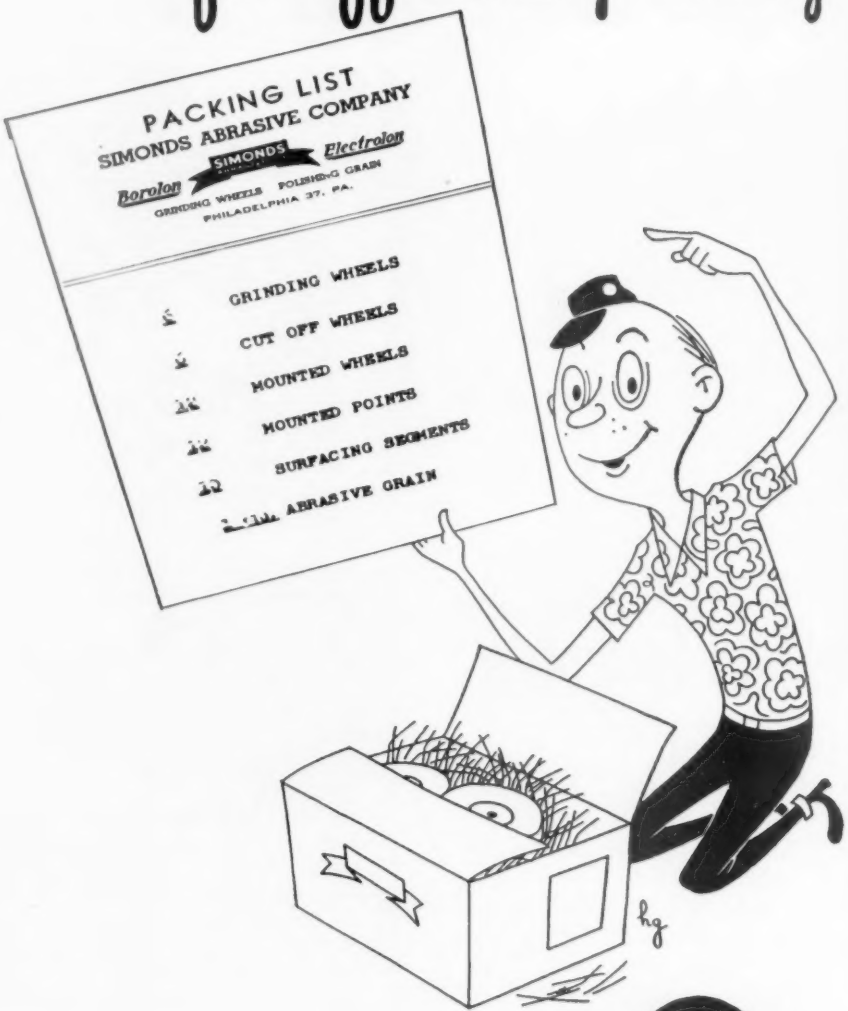


Fortified for Extra Strength! It's not enough for us that highest quality base oils are used to produce Houghton's *Cut-Max Straight Cutting Oils.* We fortify them, as well, with special additives that guarantee extra film strength and fast-spreading lubricity.

Houghton Pioneering in metal processing fields has resulted in a vast amount of helpful production data on machining, drawing, heat treating, cleaning and rust prevention. Put our "know-how" to work for you!

Metalworking and Textile Processing Products • Lubricants • Packings • Leather Belting

Winning Ticket for efficient grinding



Top grinding results per grinding wheel dollar! That's the essential economy "plank" in any "platform" for productive grinding. And that's where your Simonds Abrasive Co. distributor can be of real help to you.

He carries Simonds Abrasive Company grinding wheels for all your jobs. They're quality-controlled for lasting performance . . . and accurately specified to enable you to order the ones that conform exactly to your needs.



Send for free data book and name of your distributor.

SIMONDS ABRASIVE CO., PHILADELPHIA 37, PA. BRANCH WAREHOUSES: CHICAGO, DETROIT, BOSTON
DISTRIBUTORS IN PRINCIPAL CITIES

Division of Simonds Saw and Steel Co., Fitchburg, Mass. Other Simonds Companies: Simonds Steel Mills, Lockport, N. Y., Simonds Canada Saw Co., Ltd., Montreal, Que. and Simonds Canada Abrasive Co., Ltd., Arvida, Que.

CENTRAL SAFETY STATION GE CHEMICAL MATERIALS PLANT

A central safety station, first in the company's history and possibly the first in industry in the U. S., has been installed at General Electric Company's chemical materials plant in Schenectady.

The station groups all major safety devices for each section in one large, convenient and extra-visible place, in contrast with older arrangements in which the safety equipment was spotted at many different, hard-to-remember locations.



As rapidly as possible, six to eight more of these central stations will be established in the plant. Similar stations are planned for GE's Coshocton (O.) plant, and other plants of the company's Chemical Division will "have their safety gear so arranged as rapidly as safety engineers can determine the most logical places" for centralized safety stations, a GE announcement reports.

With their bright backgrounds, painted safety green, and the white-and-red equipment boxes, the stations will be clearly visible from a distance.

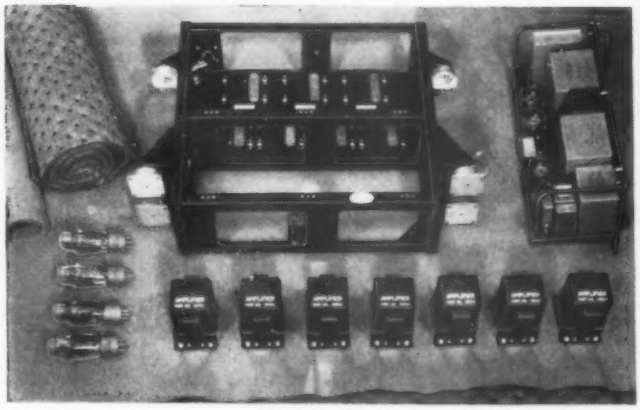
In the Schenectady central safety station the equipment and supplies were selected to meet practically any emergency. They include a bottle of wash for caustic, together with sterile gauze application pads; an MSA All-Service Gas Mask; a collapsible stretcher. a treated fire blanket; an asbestos suit; two MSA Chemox units—self-generating oxygen apparatus, for use in oxygen-deficient atmospheres; and a hand fire extinguisher.

Large signs and lettering identify the station and each equipment box so that even a brand-new man in the plant could quickly locate the safety gear in an emergency.

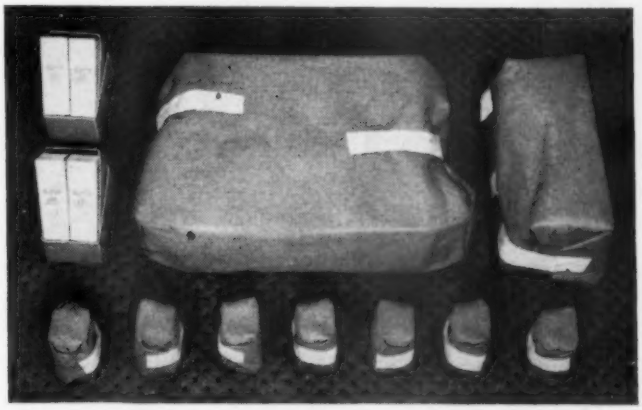
NATIONAL ELECTRIC ADOPTS TRADE NAME "NEPCONOL"

"Nepconol" is the new trade name selected by National Electric Products Corp., Pittsburgh, for its expanded line of thermoplastic insulated wires and cables, including building wires. The new name replaces the former trade name "NE'on" which has been used to designate building type wire.

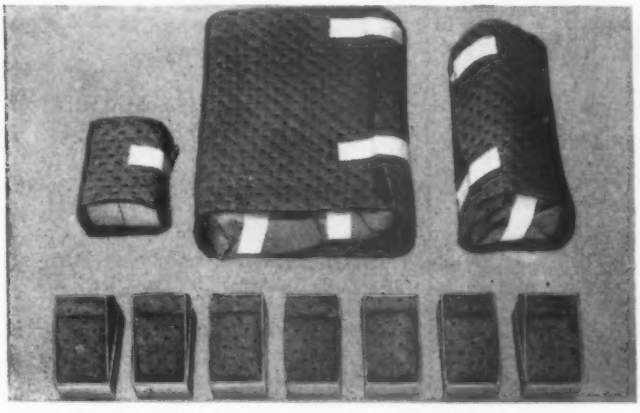
Custom Protection—prevents shipping damage to military products as no other packaging method known!



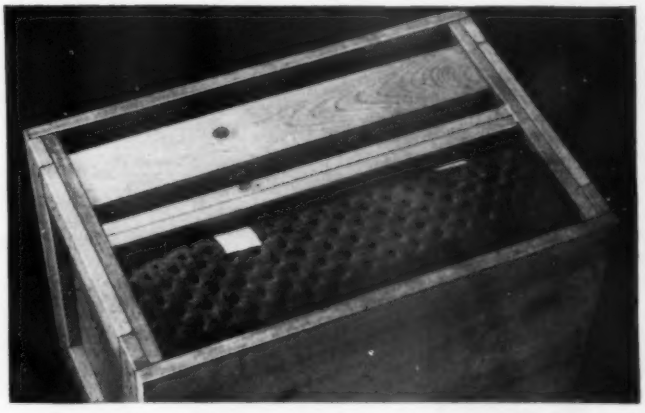
1. Assembly of parts of Amplifier Unit and all materials used in packaging.



2. Each part (except 4 boxed tubes) is wrapped in Grade A paper and tape sealed.



3. Each part is over-wrapped with Dimple Embossed KIMPAK, including 4 boxed tubes.



4. Completed assembly is inserted in wooden box for overseas or domestic shipping.

In the shipment of vital defense and military supplies, the use of sound packaging methods is a definite requirement. So to meet rigid government standards, many companies are again—as in World War II—turning to Kimberly-Clark Interior Packaging — KIMPAK.* This modern packaging material of unlimited versatility can be "tailored" to fit the needs of every type of product—is designed to protect against the most extreme shipping hazards.

KIMPAK is soft, strong, grit-free—easy to apply as wrapping paper. It cushions delicate electronic instruments against shock and vibration—protects finely finished surfaces against scratching and pressmarking. Certain specifications absorb up to 16 times their own weight in moisture; others resist liquids, or insulate against temperature changes. KIMPAK is feather-light, too, yet gives more protection than most materials of far greater weight and density.

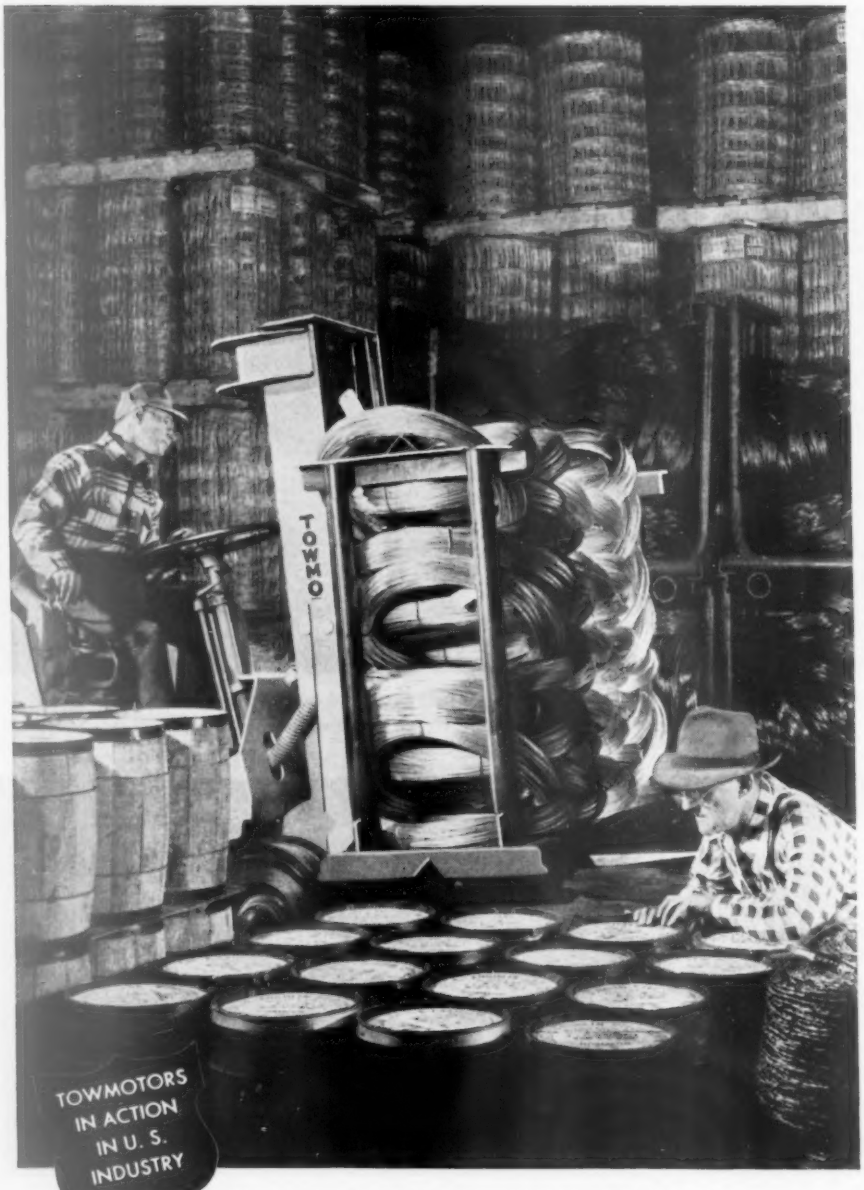
Whatever your shipping problem, there is a specification of KIMPAK designed to do the job best. Start giving your military supplies *custom protection* with KIMPAK—it's the safe, modern way to prevent shipping damage. For our free booklet "Military Packaging," or further information, write Dept. D-10, Kimberly-Clark Corp., Neenah, Wis.

KIMPAK
INTERIOR PACKAGING

A Product of
Kimberly-Clark

*T. M. REG. U. S. & FOREIGN COUNTRIES

Photos courtesy Servomechanisms, Inc., Westbury, L. I., N. Y. Product shown -Co-ordinate Converter Amplifier Unit.



Handling heavy coiled wire with Towmotor at Jones & Laughlin Corp., Pittsburgh, Pa.

give production a big hand...

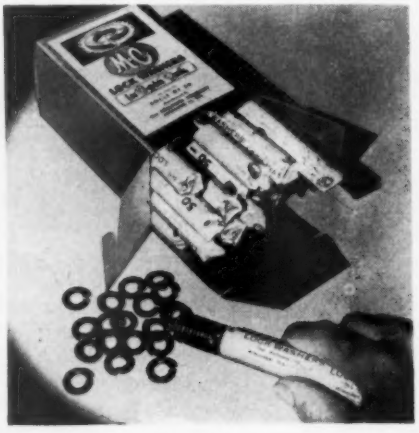
Towmotor makes one man ten times better when it comes to handling heavy loads at top-production speed. Output soars and handling costs sink accordingly... gains that fast cancel Towmotor's modest first cost. From then on it's a steady pay-off because there's real staying power built into Towmotor Mass Handling Equipment. "Man Hour Thieves" tells the whole timely story. Write for your copy and name of your nearest Towmotor Representative to: Towmotor Corporation, Div. 11, 1226 E. 152nd St., Cleveland 10, Ohio.

TOWMOTOR
THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS
SINCE 1919
RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

LOCK WASHERS PACKED IN COIN ROLLS

Packaging of lock washers in coin rolls is announced by the Mellowes Co., Milwaukee 12, Wis. Known as the "Coin Pak" the new packaging eliminates the counting and weighing of the



smaller sizes of lock washers, and enables users to buy them already wrapped in small lots of 50 or 100 in marked packages. The M-C lock washers are put up in four popular sizes, #10, ¼", 5/16" and ⅜". Shelf cartons contain 1000 lock washers each.

RUBBER MAT HAS BUILT-IN HEATING UNIT

A rubber mat with a built-in radiant heating unit has been developed by the mechanical goods division, United States Rubber Company.

The new mat has been tested successfully in theatres, hotels, warehouses, police booths, toll booths and in unheated or refrigerated areas of industrial plants to provide greater comfort for employees who encounter cold working conditions on the job.

A far western coal mine operator, for example, has installed the heaters in coal mine locomotives to warm the feet and legs of the operators. Two units were used in each locomotive, one on the floor of the cab and another softer type on the back of the seat.

They are also being used in the cabs of huge overhead cranes and under the feet of machine operators who must stand in cold areas for long periods of time.

On the surface, the heater looks like a high grade rubber floor mat. Its center, however, contains a layer of electrically conductive rubber which constitutes the heating element. It operates on 110-volt current which can be supplied from any lamp socket or baseboard outlet.

Normal operating temperature for the heat is about 35 degrees above the surrounding temperature. This temperature is warm enough to give adequate comfort but not hot enough to feel uncomfortable under foot.

Rubber used in the mat is especially constructed for toughness. The heaters are being marketed under the trade name "Uskon." They are manufactured in the company's Passaic, N. J., plant.

it faster with an abrasive DISC?

A healthy skepticism is the profitable approach for you to take, nowadays, to every abrasive operation in your shop. The difference between a bad and a good profit factor can often be a new improvement in grinding, and new developments in this field are piling up daily under the crucial necessity of cutting costs without cutting corners.

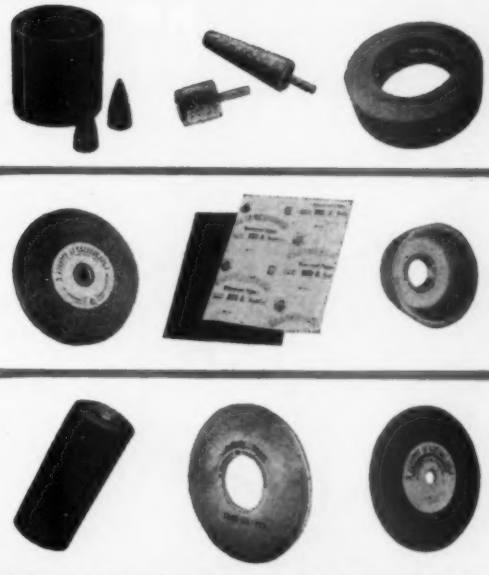
If there's a faster, better way to perform any grinding or polishing operation, your CARBORUNDUM or distributor salesman is one man who's sure to know about it. Through him, and with his unbiased help, you can change your operating methods, if that seems indicated. Or you can change the abrasive you're using. Or both, or neither. The point is...both you and he are operating on *your* side of the desk—primarily for your profit, incidentally for his...not the other way round.

That's what comes of working with the man who represents the only complete line of branded abrasives, unsurpassed in scope, unexcelled in quality. So, today—call in the man from CARBORUNDUM: it's to your profit!





Here are only a few of the 30,000 reasons why you get the RIGHT combination of abrasive and method only from CARBORUNDUM



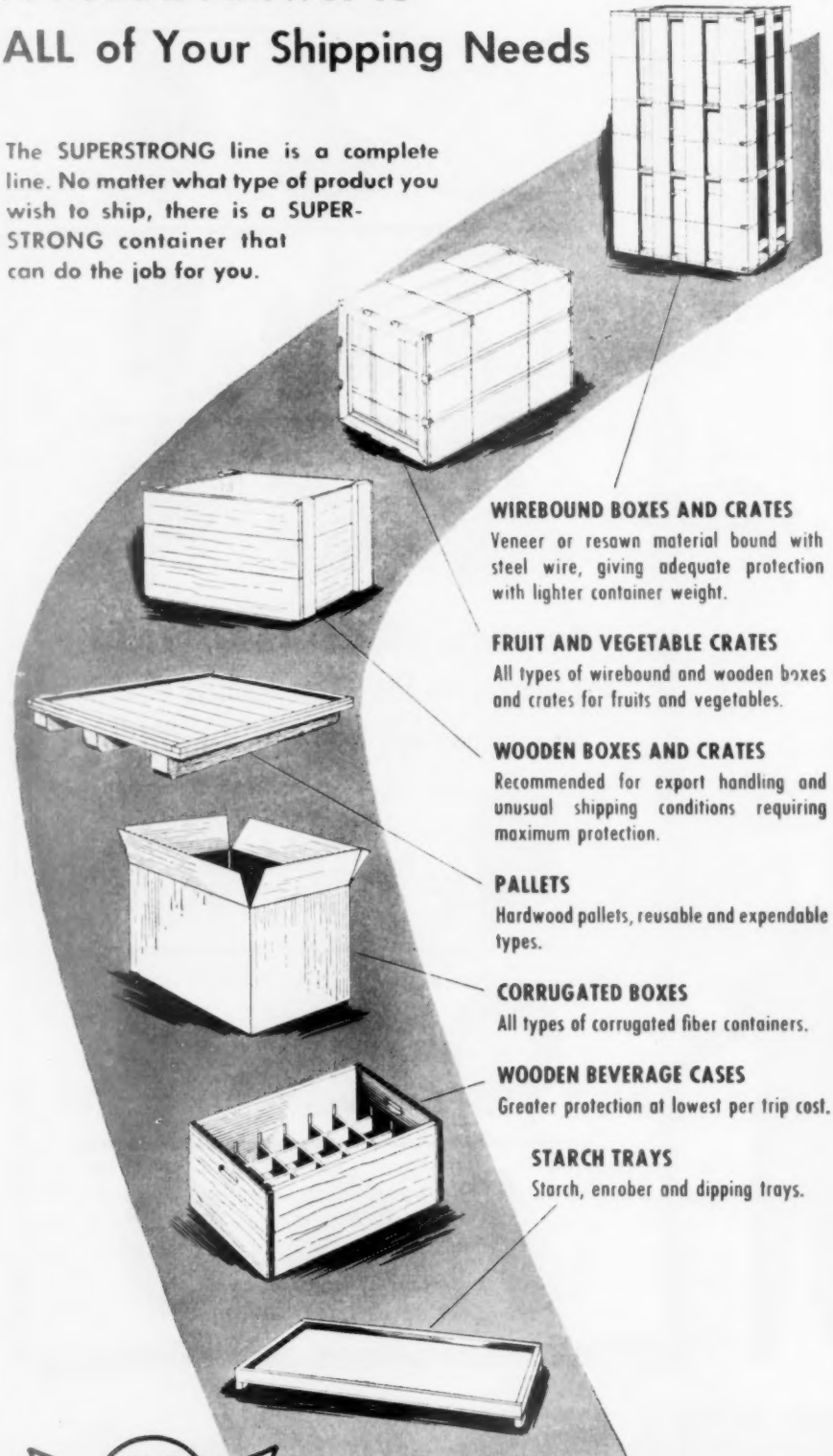
RUNDUM
MARK

offers ALL abrasive products...to give you the proper ONE

SUPERSTRONG-

A Perfect Answer to ALL of Your Shipping Needs

The SUPERSTRONG line is a complete line. No matter what type of product you wish to ship, there is a SUPER-STRONG container that can do the job for you.



WIREBOUND BOXES AND CRATES
Veneer or resawn material bound with steel wire, giving adequate protection with lighter container weight.

FRUIT AND VEGETABLE CRATES
All types of wirebound and wooden boxes and crates for fruits and vegetables.

WOODEN BOXES AND CRATES
Recommended for export handling and unusual shipping conditions requiring maximum protection.

PALLETS
Hardwood pallets, reusable and expendable types.

CORRUGATED BOXES
All types of corrugated fiber containers.

WOODEN BEVERAGE CASES
Greater protection at lowest per trip cost.

STARCH TRAYS
Starch, enrober and dipping trays.

SHIPPING SUPERSTRONG CONTAINERS
REG. U.S. PAT. OFF.

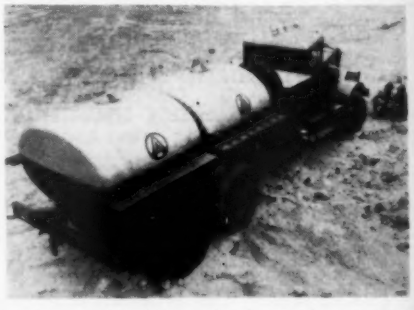
RATHBORNE, HAIR and RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

NEW ALUMINUM ANTI-RUST PAINT

PCA-102 is the name of a new aluminum anti-rust paint announced by the Paint Corp. of America, Fidelity Trust Building, Cleveland, Ohio. It is made of doubly pigmented aluminum mixed with a clear base vehicle. Because of its clear anti-rust base, PCA-102 can be applied easily and quickly without any possibility of the base "bleeding" through, it is claimed, and yielding a 10 percent brighter appearance. The new paint can be applied by brush or spray right over rust without priming, scraping, wire brushing or sandblasting, the manufacturer states. It is said to penetrate rust layers and seal the base metal against further rust action. In like vein it is said to be equally effective as a rust preventive when applied over any kind of new metal surface.

FUEL AND WATER TANKS OF FIBERGLAS-REINFORCED PLASTIC

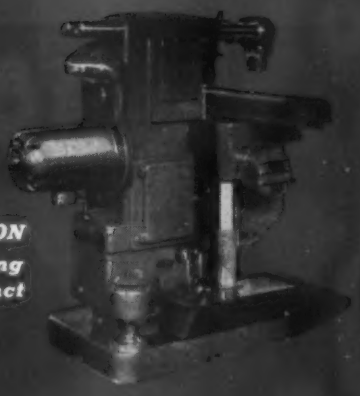
The accompanying illustration shows newly-developed fuel and water tanks being used by the Arabian Oil Company on some of its trucks that carry fuel and water across Saudi Arabian deserts. The new tanks are made of American Cyanamid's Laminac polyester resin reinforced with Owens-Corning's Fiberglas mat. Aramco has equipped 15 trucks with the new tanks—two 1,000 gallon fuel tanks and one 100-gallon



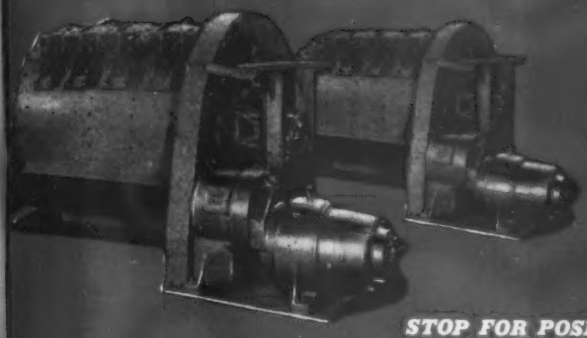
water tank. The plastic tanks cannot rust and problems posed by severe weather are kept at a minimum; nor can the tanks corrode inside from the salt in crude and refined petroleum. The tanks are molded by a special process by the Carl N. Beetle Plastics Corporation of Fall River, Mass. Both the water and fuel-carrying tanks have smooth inside surfaces that can be steamed clean.

BOOKLET OF TOLERANCE TABLES

"Handy Tolerance Tables" is the title of 144-page pocket size booklet of industrial tolerance tables in both decimal and fractional equivalents. Published by the Handy Length Book Co., 3507 18th St., S.W., Canton, Ohio. The booklet is priced at $2.00. It is designed to minimize figuring that eats up job time. The tables are especially adaptable to classroom and shop training programs where it is desirable to train workers or students in the use of decimal and fractional equivalents as they pertain to allowable tolerances.



SPEED UP PRODUCTION
Save time by stopping quickly with a compact integral brake unit



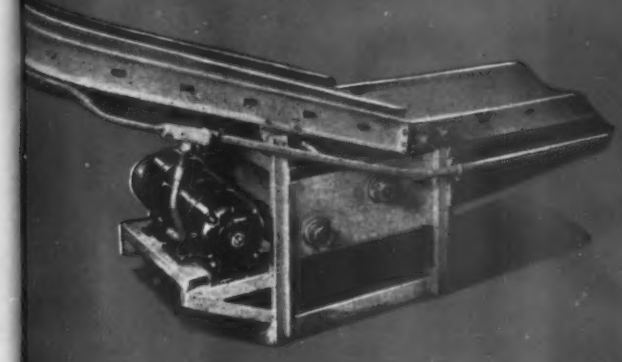
STOP FOR POSITION
Stop at the desired point for quickly and conveniently loading and unloading



MASTER UNIBRAKE MOTORS

1/8 TO 125 HORSEPOWER

THE MASTER ELECTRIC COMPANY • DAYTON, OHIO



STOP FOR SAFETY
Reduce the hazard of injury to workmen or damage to equipment which might cripple vital production

STOP AND HOLD ANY LOAD
Unibrake motors are very advantageous on hoist, elevators, inclined conveyors, etc. ...



Threaded Specialties
to Class 3 Fit



For years Pawtucket has specialized in specialties — of any size, in any metal, to any specifications.

Two items have become widely used because of their lower cost, more accurate fit and greater-than-needed strength. Pawtucket's eye bolts and tee-head bolts are made by an exclusive process that guarantees all these advantages.

For these and any other threaded specialties, save by seeing Pawtucket — "The Bolt Man".

BETTER BOLTS SINCE 1882

"THE BOLT MAN"



T.M. REG.

PAWTUCKET
MANUFACTURING COMPANY
327 Pine Street Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS

BRIGHT SILVER PLATING PROCESS ELIMINATES BUFFING

A new commercial silver plating process which makes it possible to obtain bright silver plate without buffing or scratch brushing, is announced by Hanson-Van Winkle-Munning Co., Matawan, N. J. Called Silver-Lume, the new process eliminates the usual buffing and brushing costs, produces a noticeably more tarnish-resistant surface, has a wide bright range, requires no special equipment, is easily controlled, and produces an excellent deposit-distribution and uniform color at low cost. Conventional plating equipment as used for ordinary cyanide silver baths is satisfactory.

POWDER METAL PARTS CUT COSTS

The Lionel Corporation, largest manufacturer of model railroad equipment, has put powder metallurgy to work on numerous production jobs in its plant at Irvington, New Jersey. Lionel has found that the use of powder metals often results in an improved product at lower cost and avoids the aging often characteristic of die-cast metals. Both car and locomotive wheels, for example, were formerly die cast of a zinc-base metal but are now pressed from iron powder on a Stokes press.

Powder metal is particularly advantageous to this application because it made possible a recent Lionel development, "Magnettraction," which permits trains to travel at higher speed and to make sharp turns. Magnets are installed in close proximity to the iron wheels of the locomotives to make them cling to the rails; this improves locomotive traction and makes derailments less likely. The wheels are treated to give a black non-rusting surface.

When these wheels were die cast, flash had to be trimmed after casting and an assembly operation was necessary for the installation of a steel tire. Powder metal, of course, is pressed into shape by a single stroke of the press and sintered to a hardness sufficient to withstand model railroad service. Spokes, counterweights, and other built-up sections are formed without difficulty, and holes for axles are absolutely true.

ZINC OF ALL GRADES AVAILABLE IN AMPLE QUANTITIES

Zinc of all grades is now in stock in ample quantities, and for the foreseeable future zinc reserves are adequate for all needs, according to special statement issued by the American Zinc Institute, Inc., 60 E. 42nd St., New York, N. Y. The Institute points out that zinc is no longer classified as a critical and scarce material, that the Government is making no regular purchases of zinc for the national stockpile, and that stocks of slab zinc at smelters on July 31st were 97,000 tons as compared to 22,000 tons on January 1st; also, the current price of slab zinc is much lower than at January 1st.

Clean floors better...Save money, too

with mops made of Du Pont Sponge Yarn



LASTS MUCH LONGER
—SPONGE YARN IS TOUGH!



MAKES FLOOR WASHING
AND DAMP-MOPPING NEATER



EASIER TO USE
—WRINGS OUT DAMP-DRY



HOLDS MORE WATER—
WON'T LEAVE LINT



EASIER TO CLEAN
—DIRT WASHES RIGHT OUT



WON'T TANGLE,
WON'T SOUR—EASILY STERILIZED



the same material as the popular



Du Pont Cellulose Sponge

Made of the same wonderful, work-saving material as famous Du Pont Cellulose Sponges, these new mops do a better, neater all-round cleaning job . . . and they do it quicker! And, you save money because they last longer than ordinary mops—no wonder more and more institutions are finding it *pays* to use mops made of Du Pont Sponge Yarn!

Find out for yourself . . . give sponge yarn mops a trial and you'll see how much time and money they save you. Ask your supplier for these mops—or send coupon for *free* booklet and further information on where you can get mops made of Du Pont Sponge Yarn in your vicinity.

DU PONT
REG. U.S. PAT. OFF.

150th Anniversary

Better Things for Better Living
. . . through Chemistry

SEND for FREE BOOKLET



E. I. du Pont de Nemours & Co. (Inc.)
Cellulose Sponge Sec. P-10 Wilmington 98, Del.

Please send me my free copy of the booklet describing Du Pont Cellulose Sponge Yarn's advantages for floor cleaning and maintenance.

*Name*_____

*Firm*_____

*Street*_____

*City*_____ *State*_____



PRC tapes feature natural anti-deterioration and rattle cushioning values. Special impregnations also provide unmatched *protective sealing* characteristics. FOR EXAMPLE:



CHROME LOCK
This product inhibits electrolysis and corrosion. Is also anti-wicking. Seals under pressure. Adhesive back is pressure sensitive. TYPICAL SEALING APPLICATIONS: Instruments; glazing channel window sash; skin laps on bus bodies; weatherseal for trailercoaches.

KLING FELT



Features a new, solvent-activated adhesive (one side only) that sticks to all surfaces. Can be applied to cold metal. WON'T PULL LOOSE!

TYPICAL APPLICATIONS: Weather Strip for windows, doors, etc.; dust and moisture seal for electric control panels; rattle cushioner.



PRE-SEGMENTED
PRC tapes can be supplied in segmented rolls according to order. Each segment is pre-cut to a sufficient depth to permit easy detaching. Ideal for volume application of equal-size pieces.

Write for free test sample and new engineering folder—TF-110

PRC

PRODUCTS RESEARCH CO.
3126 LOS FELIZ BLVD., LOS ANGELES 39, CALIF.
Representatives in All Principal Cities

COTTON TOWELS HAVE "WASH-UP" APPEAL

In accordance with recent surveys made by the National Cotton Council, in cooperation with the Towel Service Bureau, Inc., of New York, a cotton towel has more come-hither appeal than one usually realizes.

Pointing to the cotton towel as an important contributor to office and plant morale as well as personal cleanliness, the surveys show that Americans have to be lured into "washing-up" at times, although they have a reputation as the "bathingest" people in the world.

According to statistics, only three persons out of 100 will wash their faces unless there's a cloth towel nearby.

The more demanding get even tougher if a cloth towel is unavailable. One out of 17 won't wash at all, and only five out of 100 will wash their arms to the elbow.

But the cotton towel in office or factory will snare even the most reluctant, the Council points out. The surveys testify that 98 out of 100 will wash their hands willingly if the right towel inducement is offered. And 25 will go so far as to wash their faces.

What's more, scientific sanitation is on the side of the worker who looks for the cotton towel before he washes. Even after washing, says science, hands still have germs on them, and tests have proved that cloth removes a much higher bacteria count from the hands than any other wiping material.

NEW MACHINE MINES 72 TONS OF COAL PER MAN PER DAY

Several coal producers reported to a recent coal convention in Cincinnati that the new continuous mining machines now in use are making impressive advances in the coal mining job.

The superintendent of one West Virginia mine multiplied the productivity of a crew by dramatic proportions. While the average tons per man per day in this entire industry is about seven, it was nearly *sixty-five tons* per man day in this mine after one of these new mechanical miners was put in use. But that is not all. After experience and adjustments, the productivity was raised to *seventy-two* tons per man per day.

These new continuous mining machines are tank-like monsters with cutting arms or chains revolving over their faces. They just cut the coal out of the seam and throw it over their backs onto the first unit of the mine's transportation system. This one, continuous operation replaces a four-step, cyclical stop-and-go of conventional operation. But most mines were designed and equipped to handle the stop-and-go movement of coal. The steady outpouring of the continuous miners creates many problems of gearing up the rest of the mine processes to keep up with it.

Nevertheless, operators reported to the convention that the new machines had helped cut production costs substantially; had helped their mines' safety records; and made possible the mining of considerable tonnages of coal that had been considered uneconomic to try to recover.

EASIER, LESS COSTLY Material Handling



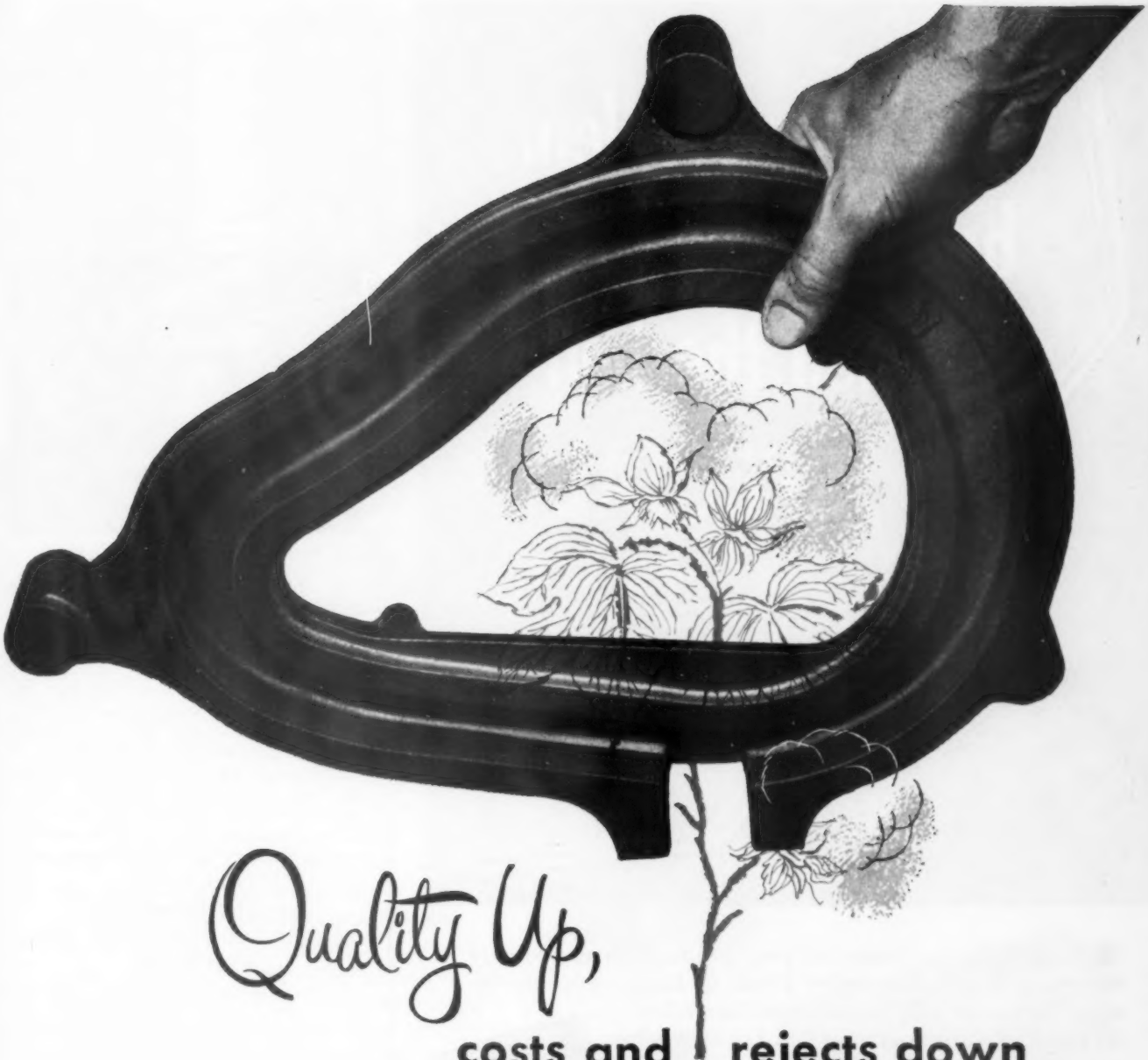
with powerful, Spur-Geared **CHESTER HOISTS**

Chester Spur-Geared Chain Hoists are expertly designed and ruggedly built . . . to give you rapid lifting and lowering with the least effort and lowest cost. Made in sizes from ¼ to 25 tons—and built into a number of special purpose hoists such as Extended Hand Wheel and Low Headroom. Timken Bearings reduce friction on working parts, insure smooth operation and long life. Chester Differential Hoists are also available—in ¼, ½, 1 and 1½ ton sizes. Ask your distributor, or write us for complete catalog, and tell us your requirements.

FAST SERVICE ON "SPECIALS"

With a modern, compact, completely integrated plant, we can give fast service on special types such as Low Headroom Trolley Hoists. Let your distributor quote on your specifications, or write us direct.

CHESTER HOIST DIVISION
The National Screw & Mfg. Company
Lisbon, Ohio



Quality Up,

costs and rejects down
WITH CRUCIBLE TOOL STEEL CASTINGS

The steel part shown above used to be a production headache. A cam for a cotton picking machine, it was originally flame cut from SAE 8730 boiler plate, machined and heat treated. Other difficult steps included end-milling and finish-grinding the cam track. Rejections were high, because the cam often warped during heat treatment.

The problem was solved by casting the cam in Airkool®, a Crucible air-hardening tool steel. When the customer receives the casting from Crucible, all he has to do is finish it, mill the cam track and heat treat. He doesn't have to finish grind — Airkool is non-deforming when properly hardened and tempered. Machining costs are way down and quality is up, since Airkool resists wear far better than the low alloy steel from which the part used to be made.

Crucible's casting facilities often make it possible to use wear- and abrasion-resisting tool steel for complicated machine parts. We may be able to help you just as we helped the cotton picking machine manufacturer. Get in touch with Crucible today!

CRUCIBLE

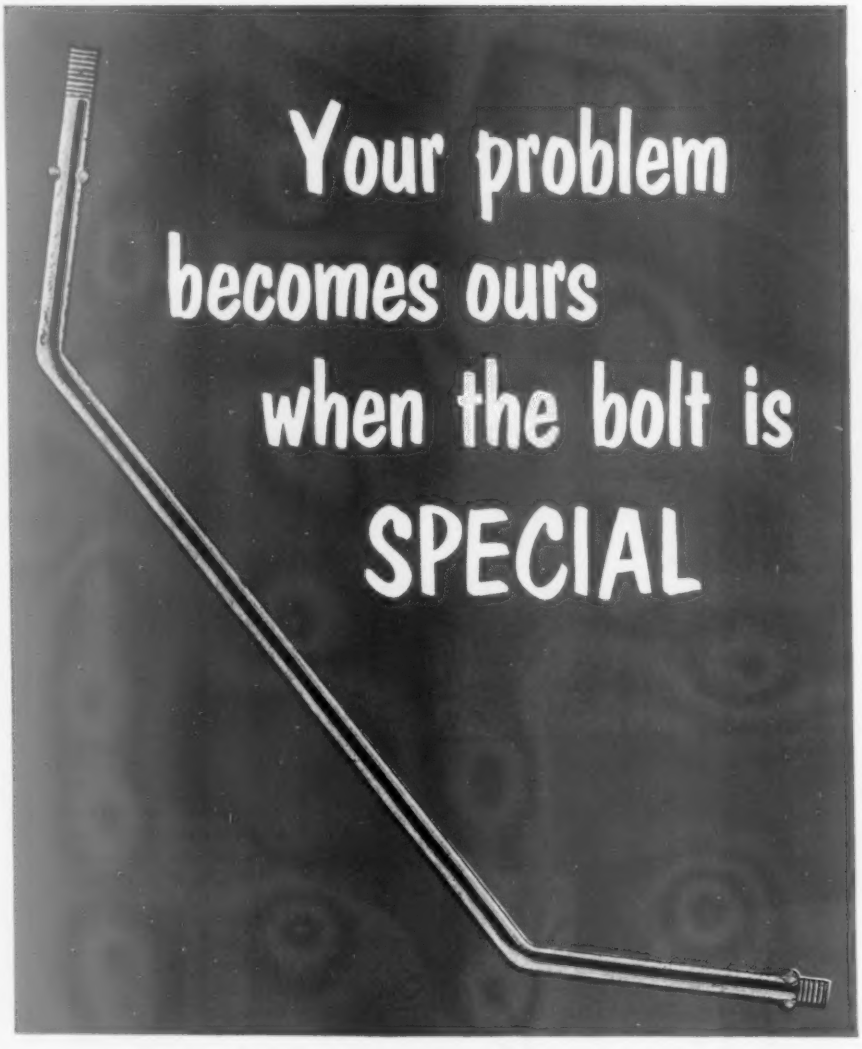
52 years of Fine steelmaking

first name in special purpose steels

SAND CASTINGS

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

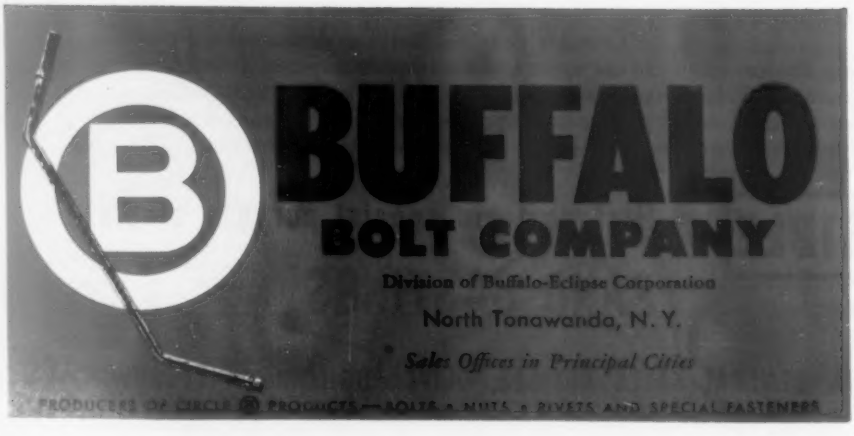
REX HIGH SPEED • TOOL • REZISTAL STAINLESS • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS



● Why limit the design of your products to an ordinary fastener? When you order Circle Ⓑ bolts, specially designed for your job, you can produce a better product...often at a saving. Let us work out your fastener problems. You'll save time and money...as well as headaches.

● For all of your fastener requirements, you'll find our new NO. 51 catalog a real help in specifying and ordering. Let us send you a copy.





ELECTRIC DRIVE FOR TEXTILE BEAM LETOFF

Electric motors and control are taking over, one by one, tasks in the production of fabrics. A recent one is that known as the beam letoff. In weaving or knitting the yarn or thread must be paid out (let off) from the spools (beams) as it is called for by the weaving or knitting mechanism. Tension must be maintained constant but the rate at which the beams unwind is obviously variable with the amount of thread remaining. This chore has generally been done by mechanical devices, but these present problems of maintenance and variable friction. Various attempts have been made to do this electrically. A new one that is working out with excellent success, according to Westinghouse Electric Corp., involves an electronic device that controls a small capacitor motor driving the beam to run in response to a sensitive tension-sensing bar over which the threads pass.



Electronic drive controls beam letoff drive.

* * *

VERSATILE TEFLON NOW AVAILABLE IN MANY NEW SIZES AND FORMS

Teflon, the chemically inert and dielectric plastic with wide application in processing and electrical equipment of all kinds, is now available in a number of new sizes and forms from Ethylene Chemical Corp., of Summit, New Jersey.

Ethylene's revised size and price table, available on request, lists Teflon shaved tape from .002" to .060" thickness; molded sheets from 1/16" to 2" thickness; molded round tubing from 1⅛" O.D. x ⅜" I.D. to 20" O.D. x 18¾" I.D.; beading from 1/64" to 4.4mm dia.; extruded rod from 3/16" to 1¼" dia.; and molded rod from 1⅜" to 6" dia. Inquiries about sizes other than those listed are solicited.

Teflon (DuPont Tetrafluoroethylene resin) is finding increasing uses in processing machinery, both original equipment and special installations, because it is chemically inert to all chemicals except molten alkalis and fluorine. It is also extremely stable under continuous high or low temperatures, from 500° F. to minus 320° F. Teflon is non-adhesive; resists erosion, moisture and weather; and has a low coefficient of friction.

Its dielectric properties make Teflon widely applicable in the electrical industry, especially in radar, radio and television transmitters.



185 Stock Pumps

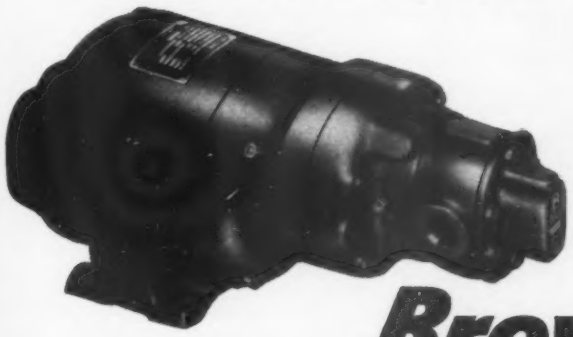
that make precise selection easy

FOR HYDRAULIC SERVICE, COOLANT, LUBRICATION, AND MISC. INDUSTRIAL USES



Knowledge of the complete line of Brown & Sharpe Pumps can be a valuable asset to you. It will save you time and money on many design jobs calling for smooth, quiet pump operation . . . and extended pump life without maintenance troubles. Most often, you'll find just the pump you need among the 185 stock models . . . centrifugal, geared, reversing vane . . . direct or motor-driven. If a special pump is required, however, you can depend on Brown & Sharpe engineers to design it to meet your requirements.

Complete, illustrated information on each type and size is available in the big Brown & Sharpe Pump Catalog. It includes all data, installation dimensions, and charts showing performance characteristics. Write for your copy. Brown & Sharpe Mfg. Co., Providence 1, R. I., U.S.A.



WE URGE BUYING THROUGH THE DISTRIBUTOR

Brown & Sharpe B·S



How Many Water Coolers Are Enough?

G-E Work Center Plan for Water Cooler Placement offers a new formula for quick, easy check of your own water facilities

This plan brings new information on the selection and placement of water coolers. Based on a recent General Electric study of efficiency in drinking water layouts, it tells you how to locate water coolers to cut wasted man-hours and save payroll dollars year after year.

Whether you are planning new construction or merely wish to analyze your present facilities, the G-E Work Center Plan gives you the answer. Send the coupon for your copy of the free booklet which will help you determine exactly how many water coolers are enough for *you*.



FITS ALMOST ANYWHERE—All models take less space than an ordinary office chair.



ANGLE-STREAM, NON-SQUIRT BUBBLER—Avoids water dripping back. Slotted nozzle.



DIAL THE WATER TEMPERATURE—Control knob easily reached, concealed against tampering.

You can put your confidence in—

GENERAL ELECTRIC

FREE! Illustrated booklet giving savings table, 5-step method, and typical floor plan.



GENERAL ELECTRIC COMPANY, SECTION P-4
AIR CONDITIONING DIVISION, BLOOMFIELD, NEW JERSEY

I am interested in learning more about the G-E Work Center Plan.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....ZONE.....STATE.....

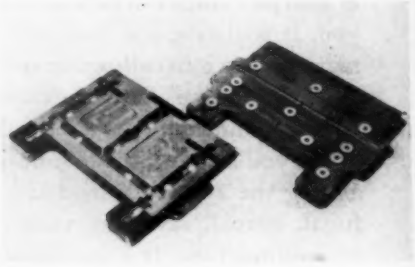
CELLOPHANE IN AMPLE SUPPLY SCARCITY REPORT IN ERROR

Cellophane production is now more than adequate to meet present demands and no immediate cellophane shortage can be foreseen, the Cellophane Manufacturers Industry Advisory Committee emphasized at its meeting with officials of the National Production Authority, Department of Commerce.

Committee members criticized NPA's listing of cellophane as a scarce material in its Revision of Designation 1, issued June 5, 1952, and contended that it has discouraged the use of cellophane and created the impression of a shortage. Although cellophane was inadvertently included on the list of scarce materials, NPA officials assured the committee that steps are now being taken to have it removed.

There is no backlog of orders, the industry is operating below capacity, and new production facilities are being added, the cellophane manufacturers said. Volume of business is generally below that of 1951 and the seasonal peak demand which usually develops in October is not expected to tax present production facilities, members said.

NYLON LENGTHENS CORE BOX LIFE

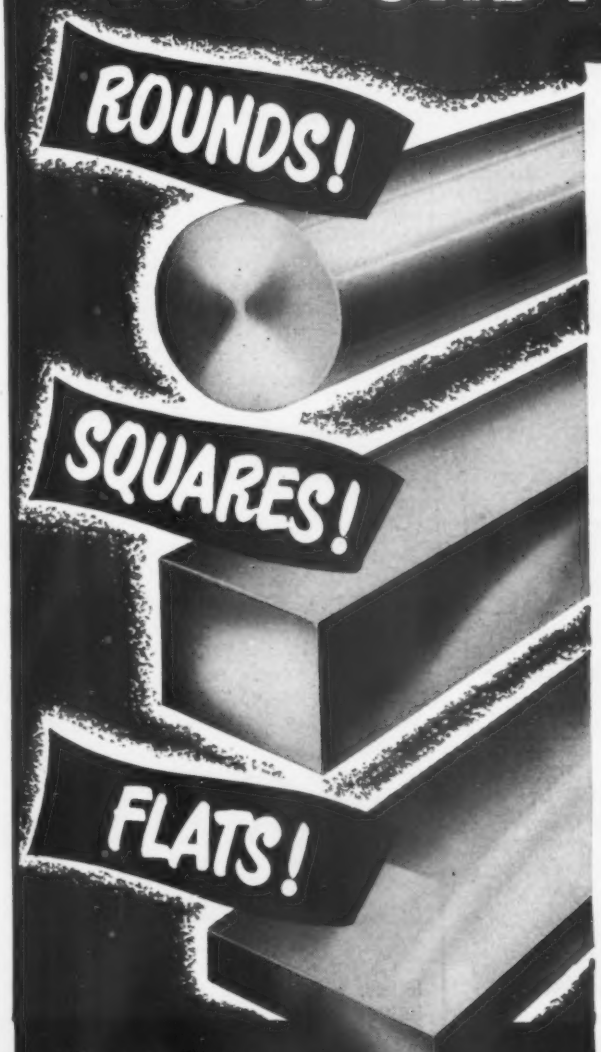


By inserting nylon bushings at the core-box blow holes, and nylon striker pads at the spots of greatest wear in the mold cavity, a mid-west foundry has kept the core box in service "several times" longer than usual without repair or replacement.

The company uses aluminum core boxes for molding sand cores used in casting brass valves and plumbing fittings. When the two halves of the core box are put together, core sand mixture is forced into the box through the blow holes in the upper half under air pressures of from 80 to 120 lbs. The abrasive action of the sand soon wears the unprotected metal at and around the holes, and also at spots in the cavity directly below the holes, where the sand hits with terrific pressure.

The nylon plugs and bushings resist the abrasive action of the sand. They are machined from FM-10001 nylon rod provided by The Polymer Corporation of Pennsylvania, Reading, Pa. It is said that nylon is much more effective than rubber inserts, formerly used, and has almost entirely eliminated the difficulties encountered from sand abrasion.

It's PURDY for—



Everything in DRILL ROD!

ASK FOR THE *PURDY* DRILL ROD HANDBOOK

Now available, this handy reference will be helpful to purchasing agents, production supervisors and designers. The Purdy Drill Rod Handbook contains complete tables of sizes and grades on round, flat and square rod and full information on Purdy stocks of music wire. Call or write for your copy of the new Drill Rod Handbook, today, while copies are still available.

The PURDY Line —

SPRING STEELS
COLD FINISHED STEELS
COLD ROLLED SHEETS
COLD ROLLED STRIP STEEL
STAINLESS STEELS
DRILL ROD
ALUMINUM SHEETS AND COILS
ALUMINUM BARS AND RODS

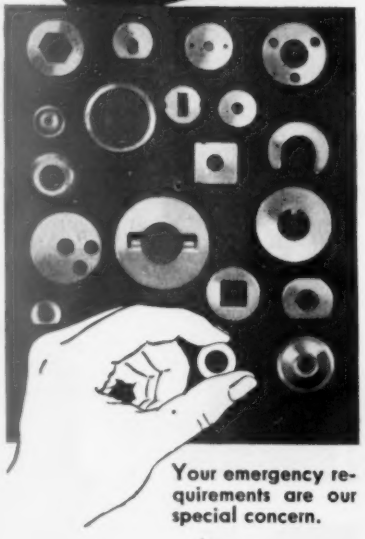
LYNDHURST: Rutherford 2-8100
NEWARK: Humboldt 2-5566
NEW YORK CITY: Chelsea 3-4455

CONNECTICUT: Enterprise 6400
ROCHESTER: Enterprise 6400
SYRACUSE DIST. OFFICE: Syracuse 72-6677

HIGH-ACCURACY SLITTING AND SHEARING OF ALL METALS — ALL WORK PERFORMED TO CLOSE TOLERANCES ON HIGH SPEED MACHINERY

Standard ..Specials

STEEL WASHERS FOR EVERY NEED



A DEPENDABLE SUPPLIER FOR 38 YEARS . . .

Your requirements for standard and special steel washers are sure to be satisfied at Joliet. A bank containing thousands of special dies in many shapes and forms, 9/32" to 8" O.D., gauges No. 28 to 3/8", stands ready to answer your needs. A VARIETY OF FINISHES IS AVAILABLE to meet your special needs, including: Electro-plating, Galvanizing, Parkerizing, and Cyanide hardening.

After All!

THERE'S NO SUBSTITUTE FOR QUALITY AND SERVICE

Your emergency requirements are our special concern.

203 CONNELL AVE.
JOLIET, ILLINOIS

JOLIET WROUGHT WASHER CO.

WILL YOUR NAME BE REMEMBERED ?

Yes—with friendship and esteem, for a long time, if you place your name and business on a Gits Quality Plastic Product. The cost is small—the value high. You have a wide selection of items to choose from, ranging from $3.00 per 1,000 to $10.00 per item.



ASK your specialty jobber to show you the complete line of Gits Quality Plastic Products, or write direct, using coupon below.

GITS MOLDING CORP.
4640 W. HURON ST., CHICAGO 44, ILL.

Gentlemen:

☐ Please send me at once sample of the item I have checked below and prices in ..... quantity.
☐ Plain ☐ With imprint

☐ "Plastic Eye" Flashlight
☐ "Plastic Eye Jr." Flashlight
☐ "Super Right Angle" Flashlight
☐ "One-Hand" Knife
☐ Razor-Nife and Key Chain
☐ Letter Opener
☐ Nail File
☐ Thimble
☐ Stir Stix
☐ Bracelet Key Holder
☐ Shoe Horn
☐ Key Tag
☐ Match Pac
☐ Par-Kit

☐ The items you illustrate do not fully satisfy my needs, so please send me your complete catalog and full information.

(PLEASE PRINT)

NAME ..... TITLE .....
COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

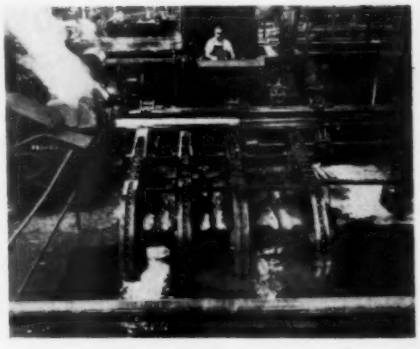
WESTINGHOUSE TO DEVELOP "ATOMIC ENGINE"

Westinghouse Electric Corporation has been assigned the task of developing an atomic power plant "suitable for the propulsion of large naval vessels such as aircraft carriers." The disclosure that the present contract between the Atomic Energy Commission and Westinghouse has been modified to include development work on such a nuclear reactor was made by Charles H. Weaver, manager of the Westinghouse Atomic Power Division, Pittsburgh, Pa.

Work on the new reactor project will be centered at the Atomic Power Division Bettis plant near Pittsburgh and will be carried out with the assistance of other Westinghouse operating divisions and widespread sub-contractors.

Westinghouse already is building the atomic power plant and all associated propulsion equipment for the Navy's first atomic submarine, the U. S. S. Nautilus. The keel-laying ceremonies for that vessel were held June 14.

GIANT PIERCING MILL SPEWS OUT COPPER TUBE IN SECONDS



Copper tube, produced from solid cast billets, gets its first rigorous processing in this piercing machine at Chase Brass & Copper Co. mill in Waterbury, Connecticut.

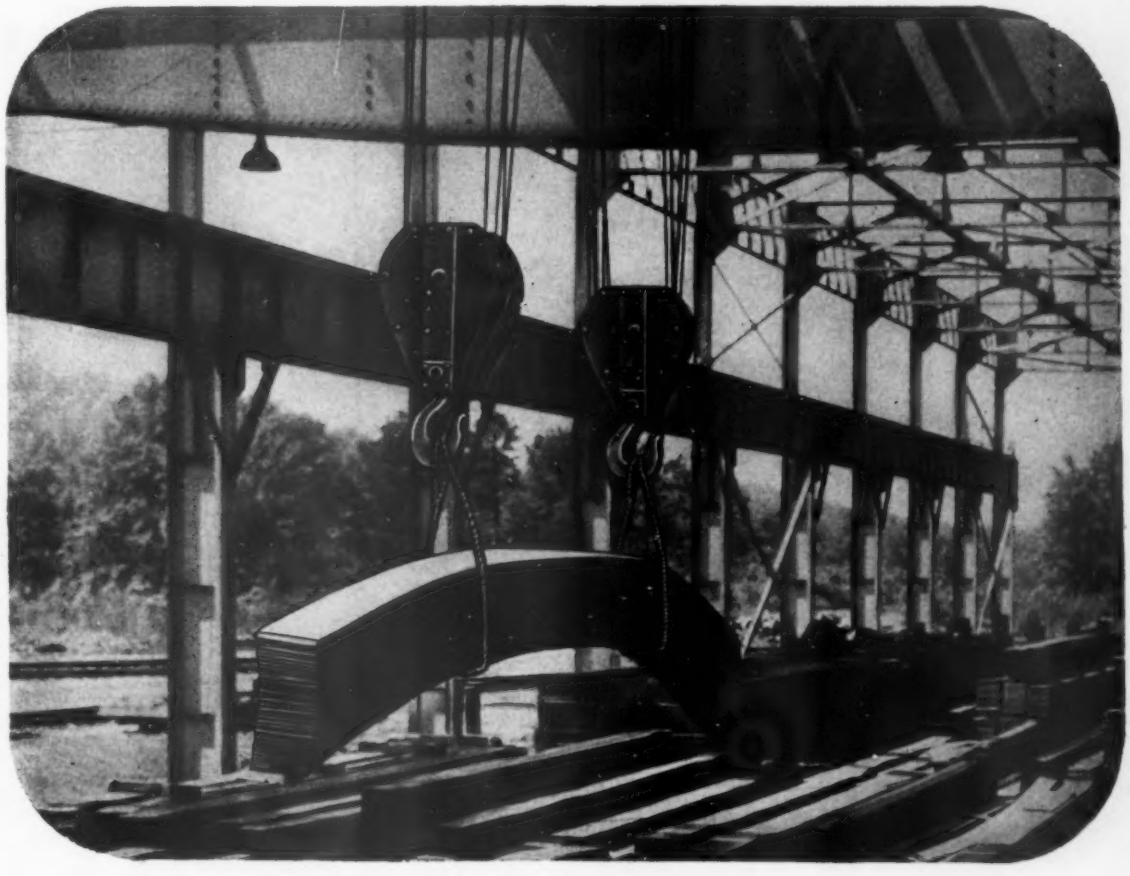
Heated in a rotary furnace to approximately 1500 degrees F., copper billets ranging in diameter from 3 to 9 inches and weighing up to 1000 pounds, move into this billet piercer on a conveyor.

In the piercing machine the hot billets are rotated and driven ahead by tapered rollers, which open up the end of the billet to form a cavity. A mandrel then moves in and the copper continues to rotate over it until a rough, hollow tube is formed. A chain conveyor picks up the copper tube and passes through a water quench bath, then to a pile of cooling tubes.

From heated billet to quenched rough tube requires less than a minute. The operator shown controls the entire process with hand levers without even leaving his seat.

When a dozen or more pierced tubes have been stacked, an overhead crane carries them to one of the Chase drawbenches which cold draws the tube through dies down to the desired size for hundreds of uses.

WIRE ROPE



This is the longest-lasting rope we've ever made for industrial use

ROEBLING HAS been making wire rope for more than a hundred years. And during all that time we've been developing new kinds of rope, and making them better.

Today, about the first thing you ask about a wire rope is, "Has it got what it takes? Will it stand up and cut replacements?"

Our answer is an emphatic *yes*, because Roebling Preformed Blue Center Steel Wire Rope meets the severest tests of tensile strength, abrasion resistance and general toughness.

There's a Roebling rope that will prove the longest-lasting and most economical in your operations. Call on your Roebling Field Man for his recommendations. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13325 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, N. J.



Are You Getting Your Cut?

Many industrial steel users are getting the cut they want through Holliday's complete precision shearing and sawing facilities. By placing their steel orders with Holliday for sheets, bars and plates, and other steel products, their requirements are delivered cut to the exact specifications.

Cutting is done as a service to our customers—some products being cut to length free of charge and others carrying a nominal charge for cutting to length.

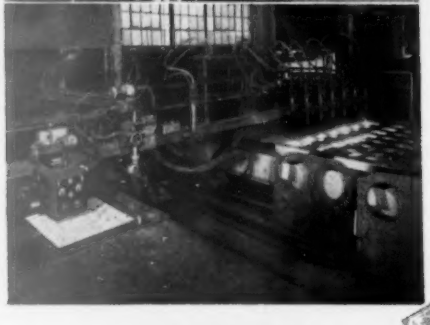
A constant flow of all steel products enables us to efficiently flame cut, friction saw, shear, abrasive cut, slit, and hacksaw much cheaper than within most manufacturing and industrial plants, if consideration is given to investment in men and machinery needed to perform these operations.

Holliday can do it more accurately and more quickly, so the next time you need steel, let us give you your cut. Place your next order with Holliday.

We also stock hot and cold rolled strip, structurals, plates, hot and cold finished bars, stainless, tool steel, boiler tubes, pipe, and countless other items.

Our many services include roller leveling, breaking and forming, punching and slotting, stress relieving, pickling, and many others.





SINCE 1856
W. J. Holliday & Co.
(INC.)

Indianapolis and Hammond, Indiana

TWO LARGE PLANTS TO SERVE YOU!

PHONES: Indianapolis: Plaza 2422 Hammond: Sheffield 8000 Chicago: Essex 5-2300

GRAPHIC PRODUCTION ILLUSTRATIONS BASIS OF SAVINGS UP TO 50%

Many manufacturing plants are now using graphic or production illustrations to instantly "visualize" complex machining and tooling sequences and assembly operations so all personnel may grasp them quickly. A newly published brochure by Walter Production Illustrations, 4255 Woodward Ave., Detroit 1, Mich., entitled "Why the Trend is Towards Production Illustration" describes this new application of "Graphics" and how it effectively boosts production figures.

Photos and drawings in the brochure illustrate direct applications of "Graphics" in tooling operations, process engineering, assembly line methods and other time-saving applications in mass production plants.

Substantial savings result from use of graphic illustrations as time-studies of various machining, tooling and assembly operations in the automotive and aircraft industries reveal savings up to 50%.

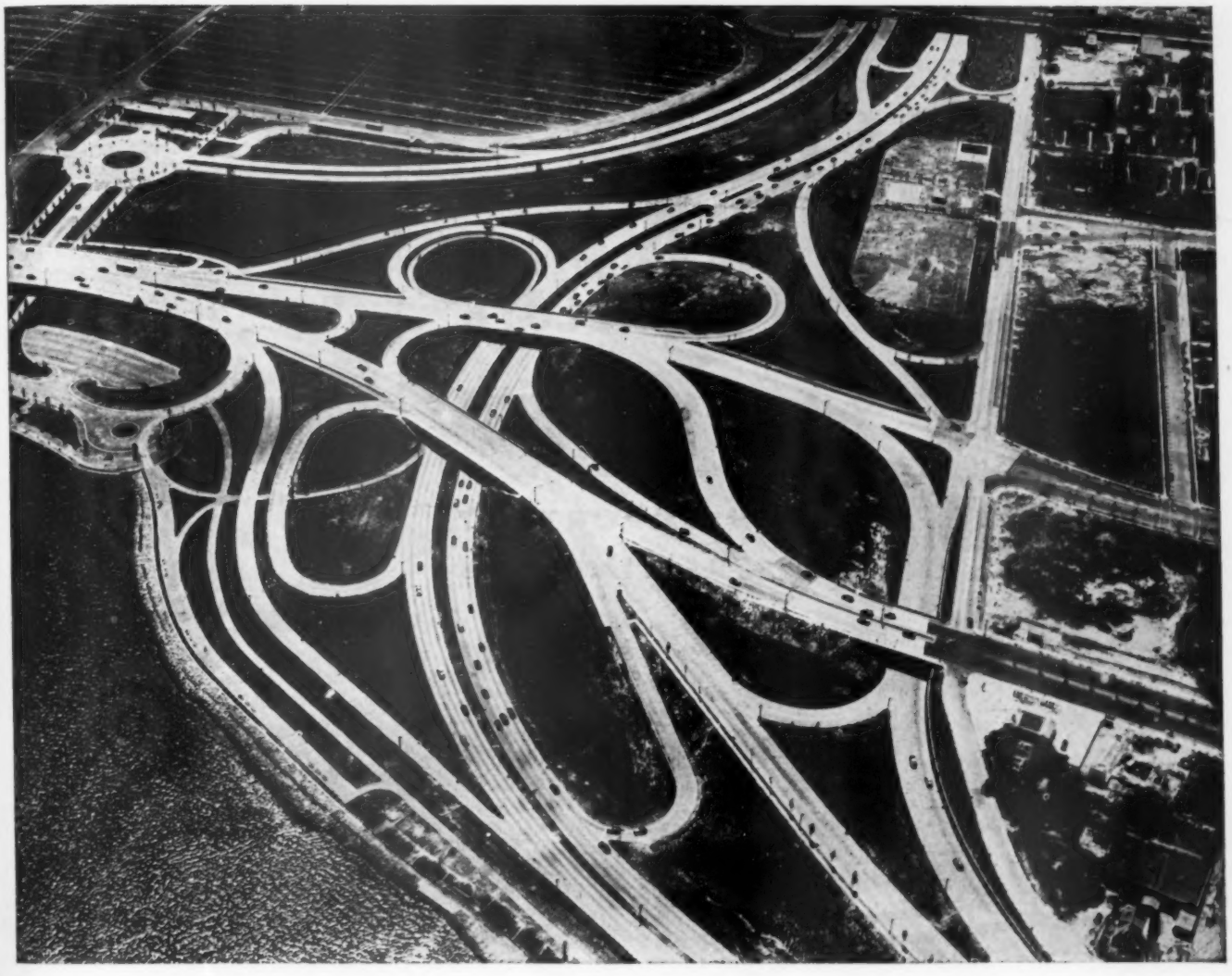
As explained in the brochure, "Graphics" may be produced on an economical basis by rendering them in pencil in convenient 8½" x 11" size. Reproduced by ordinary blueprint methods, they may be used easily by personnel on all levels including production and process engineers, buyers, superintendents, foremen, machine operators and assembly line workers.

MAGIC CARPET OPENS DOORS



Illustration shows "Magic Carpet" made by the Magic Door Division of The Stanley Works, New Britain, Conn., which opens building doors at the touch of a foot. A step—even that of a 20-pound child—on the carpet makes electrical contact, completing a simple 6-volt circuit and opening the door which is set for one-way traffic.

Powered by an out-of-sight air-compressor, the door operating mechanism is available in concealed versions which may be installed in the wall or ceiling over the door or beneath the door under the floor, and in a visible version which may be attached to the wall directly over the door. The carpets are molded of Vinylite resin plastisol which is highly resistant to abrasion and wear, to the elements, and to acids, alkalis and salts used in cleaning solutions. The carpets are 25 to 29 inches wide by 84 or 93 inches long. The rails shown were set up merely to guide traffic.



Pacemaker of a fast-moving world

Year after year, automotive America steps up its fast-moving pace. It's never content with good-enough . . . always seeks *and finds* improved means, methods and materials. In Exide batteries new developments are constantly being made, for Exide research keeps well ahead of motor vehicle requirements. The new, better-than-ever Exide batteries give greatly improved performance, longer battery life at a lower over-all cost. On millions of cars, trucks, tractors and buses, they daily prove that "When it's an Exide . . . you start."

There are dependable Exide batteries for every storage battery need. They are used to power battery-electric trucks, mine locomotives, trammers and shuttle cars. Railroads use them for diesel locomotive starting, car lighting, air-conditioning, signaling and communications.

Exide batteries are used by telephone, telegraph and cable companies . . . electric light and power utilities . . . radio and television stations . . . ocean, harbor and river vessels . . . municipal fire-alarm and police telegraph systems . . . more than 250 different applications in all.

Exide
BATTERIES

"Exide" *Reg. Trade-mark U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • ***Exide Batteries of Canada, Limited, Toronto***

ROLOCK

FABRICATED HEAT AND CORROSION RESISTANT ALLOYS

AN ASSEMBLY THAT *"Gives a Lift"* TO AN IMPORTANT HEAT TREATING JOB



Four sets of these Stacking Furnace Baskets were custom-fabricated by Rolock to fit pit-type furnaces built by Hevi Duty Electric Company. Photo at left shows bottom grid, mesh disc, lift straps and fastening keys. Photo at right shows complete assembly ready for furnace.

They are used by a nationally known manufacturer for hardening at 1850° F. Material of basket is type 330 stainless steel. Size, each basket, 28" I.D. x 12¾" high. To facilitate handling in and out of the furnace the baskets are securely fastened together with alloy lift straps and keys. Note fabricated bottom grid and mesh disc. All welding is of the highest quality.

Rolock equipment is engineered to suit the specific job . . . for maximum strength . . . for as high a ratio of load to weight as safety permits . . . for handling convenience . . . and for low hour-cost through extended service life. Our engineering department likes to solve problems. Tell us about yours!

Rolock Booth No. 1810, National Metal Exposition
October 20-24, 1952, Philadelphia, Pa.

Offices in: PHILADELPHIA • CLEVELAND • DETROIT • HOUSTON • CHICAGO • ST. LOUIS • LOS ANGELES • MINNEAPOLIS • PITTSBURGH

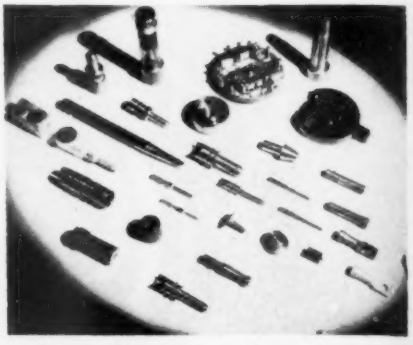
ROLOCK INC. • 1272 KINGS HIGHWAY, FAIRFIELD, CONN.

JOB-ENGINEERED for better work
Easier Operation, Lower Cost

10RL52

TELLURIUM COPPER FOR ELECTRICAL AND ELECTRONIC PARTS

Tellurium copper alloy with machinability approaching that of free-cutting brass and electrical conductivity 90% of that of pure copper—making it particularly well suited for the mass production of electrical and electronic connectors and other parts—is available from the Chase Brass & Copper Company, Waterbury 20, Connecticut, subsidiary of Kennecott Copper Corporation. Tellurium copper is a patented Chase alloy.



The addition of tellurium to pure copper does not materially reduce electrical conductivity, but it does greatly increase ease of machining. Tellurium copper may be extensively hot worked, since the addition of tellurium does not adversely affect the hot working properties of copper. The alloy may also be severely cold worked although it is somewhat less ductile at room temperatures than pure copper.

These properties of Chase Tellurium Copper provide an important advantage, in comparison with leaded copper or leaded-high copper alloys, because the hot working properties of copper are greatly reduced even when small amounts of lead are added.

Tellurium copper is well adapted for use in welding and cutting tip products because of its machinability and its high thermal conductivity.

It is supplied in hard or half hard temper in the form of rod and bar.

TET FILES NEW RATE SCHEDULES WITH FEDERAL POWER COMMISSION

The Texas Eastern Transmission Corporation has filed with the Federal Power Commission new rate schedules for gas sales to its utility and municipal customers, calling for the first increases in rates since the company began operations in 1947. It is stated that the increased rates are necessary to meet substantial increases in the cost of operations, particularly in the cost of the gas which the company purchases. The new rates are estimated to yield approximately $42,000,000 of additional revenue in 1953. Other major increases in the cost of service are listed as new or increased gathering and severance taxes imposed by Louisiana and Texas, increased fixed charges and requirements for return on capital on new facilities, substantial increases in Federal income tax rates, and increases in wages, materials, electric power, and other items.



. . . for every type of work

Simonds makes all types of standard machinists' files . . . but Simonds only makes *one quality: Grade A.* And that quality is checked, safeguarded, assured by the Simonds "Prover Test" . . . so you can be sure that "Red Tangs" will cut instead of scrape . . . and that they unfailingly cut more smoothly, with less "elbow grease." That's why workers like them . . . why you'll find they can make your file dollars go farther. Order the Simonds "Red Tang" Files *you* need from your Industrial Supply Distributor today.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon. Canadian Factory in Montreal, Que.
Southern Service Shop in Meridian, Miss. (formerly J. H. Miner Saw Mfg. Co.).
Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

Personalities IN THE NEWS



Howard C. Germain has joined United States Plywood Company, New York, N. Y., as Director of Purchases. Previ-



Howard C. Germain

ously, he served for ten years as Purchasing Agent for American Car and Foundry Company. From 1932 to 1942, he was administrative assistant to the division director of the Federal Works Agency.

Richard S. Milton has been appointed Purchasing Agent of Filtrol Corporation, Los Angeles, Calif. Mr. Milton has been active in the company since 1937, when he was placed in charge of purchasing for California operations and sales department coordination. A graduate of



Richard S. Milton

Harvard University, he has been with the American Potash and Chemical Corp., International Filter Co., and DeLaval Steam Turbine Co., doing sales and purchasing work.

J. Richard Sayers has been appointed a Purchasing Agent for Monsanto Chemical Company's Organic Chemicals Division, St. Louis, Mo. Mr. Sayers, who has been a research chemical engineer for the division's research department, will be in the chemical raw materials section. He holds a B.S. in chemical engineering from the University of Notre Dame and an M.S. in chemical engineering from Columbia University.

John D. Peters has been appointed Manager of Purchasing Research in United States Steel Company's purchasing division, Pittsburgh, Pa. The announcement was made by C. A. Ilgenfritz, Vice President—Purchases.

Mr. Peters was born in Youngstown, Ohio, where he attended public schools. He graduated from the University of



John D. Peters

Michigan with an A. B. degree and received an L.L.B. from Western Reserve University. He was admitted to practice law in the state of Ohio and was first employed by the United States Department of Justice in Los Angeles, California. He subsequently returned to Ohio to become an associate in the law firm of Baker, Hostetler and Patterson in Cleveland.

Mr. Peters joined the American Steel and Wire Company in 1946, and since that time he has been engaged in research activities in the fields of finance and commerce for U. S. Steel. Prior to his present appointment, he was staff assistant to the assistant executive vice president—accounting, United States Steel Company.

J. Herbert Morgan has been appointed General Purchasing Agent of Superior Steel Corporation, Carnegie, Pa. He suc-



J. Herbert Morgan

ceeds Paul W. Pheneger, who has been named general superintendent of Superior's ordnance clad metal plant.

For 12 years prior to joining Superior, Mr. Morgan was associated with Army Ordnance. Prior to that he was assistant secretary of the Public Utility Commission.

Mr. Pheneger will supervise the completion and direct the operation of the new five million dollar rolling mill being built by Superior and equipped by Army Ordnance.

Edward F. Whittemore has been appointed Purchasing Agent for the Detroit, Mich. plant of the Morse Chain Company, a



Edward F. Whittemore

Borg-Warner industry. Mr. Whittemore was formerly with New Holland Machine Company, where he directed purchasing.

S.E.C.O. SPEEDS MACHINING OPERATIONS, REDUCES REJECTS, INCREASES TOOL LIFE

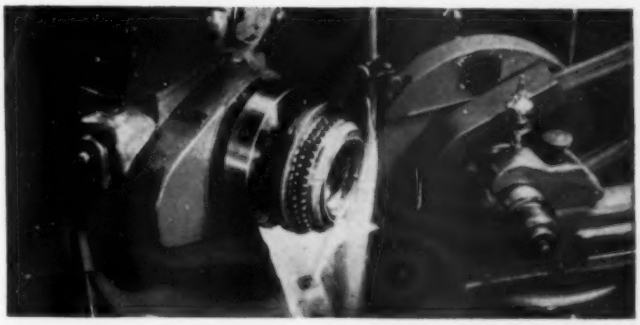
For any machining operation where an oil of its type can be used, Sunoco Emulsifying Cutting Oil will boost production, reduce downtime for cleaning and tool dressing.

A self-emulsifying petroleum product, S.E.C.O. forms a stable white emulsion when mixed with water. Its cooling and lubricating qualities make it particularly effective in the high-speed precision machining of ferrous and nonferrous metals. S.E.C.O. keeps machines clean, has a pleasant odor, and prevents rusting of parts between operations.

For complete information about S.E.C.O., write SUN OIL COMPANY, Philadelphia 3, Pa. Address Department PU-10.

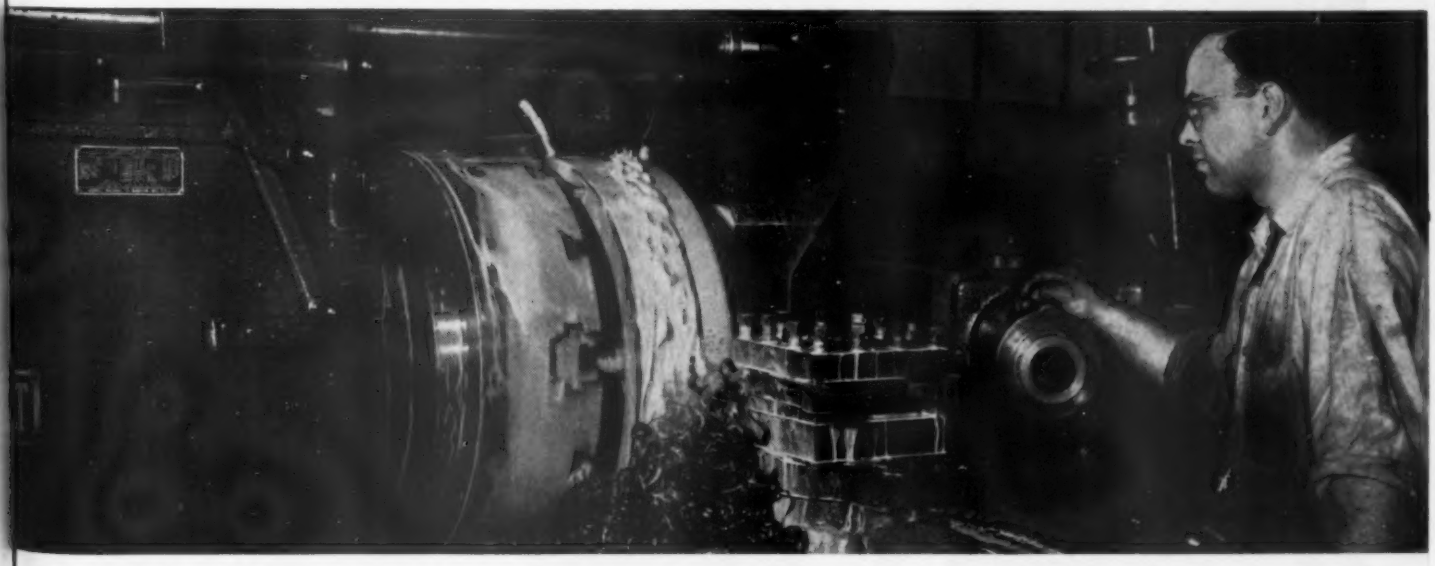


MACHINE: 2" automatic tapping machine • Parts: pipe fittings Metal: malleable iron • Operation: threading and chamfering 1½" 45° elbow • Cutting Speed: 75 sfm • Tools: high speed • Production: 306 pieces per hour • Cycle Time: 11¾ seconds • Cutting Oil: 1 part S.E.C.O. to 10 parts water



COURTESY BROWN& SHARPE MFG. CO.

MACHINE: Brown & Sharpe No. 2 Universal Grinding Machine Part: screw machine spindle sprocket • Metal: AISI-C1107 • Operation: grinding 90° included angle • Method: plunge-cut ground periphery of wheel • Grinding Oil: 1 part S.E.C.O. to 40 parts water



MACHINE: Gisholt turret lathe, model 4L • Part: 20" press mold shell, 22⅝" O.D., 6" depth, 20½" I.D. • Operation: turning and boring rough forgings • Materials: 40 to 50 carbon steel • Tools: Firthite carbide • Feed: .012 at 31 rpm • Cut: ½" to ¾" on O.D. and boring • Cutting Oil: 1 part S.E.C.O. to 10 parts water

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO®



Outstanding IN ITS FIELD

The buildings housing the entire plant of White Laboratories are among the most outstanding in the pharmaceutical and drug industry. Needless to say Halsey Taylor Coolers were chosen, because they are equally outstanding, with their dependable sanitary features, modern design and economy of maintenance.

• Write for latest catalog.



The HALSEY W. TAYLOR CO., WARREN, O.

see our CATALOG in SWEET'S FILE

HALSEY TAYLOR drinking fountains

F-23

Herbrand

PRECISION

DROP FORGINGS

. . . any size or shape up to 200 lbs.

Whatever your requirements in forgings, Herbrand is your most faithful source of supply . . . as it has been for hundreds of industries since 1881. Your inquiries are solicited.

Herbrand DIVISION
THE BINGHAM-HERBRAND CORP.
FREMONT, OHIO

Over 85% of the torque wrenches used in industry are

STURTEVANT TORQUE WRENCHES

Read by Sight, Sound or Feel.

- Permanently Accurate
- Practically Indestructible
- Faster—Easier to use
- Automatic Release
- All Capacities

in inch ounces . . . inch pounds . . . foot pounds (All Sizes from 0-6000 ft. lbs.)



Every manufacturer, design and production man should have this valuable data. Sent upon request.

P A STURTEVANT CO
ADDISON QUALITY ILLINOIS

Robert P. Evanss, Purchasing Agent for Scranton-Spring Brook Water Service Co., Scranton, Pa., has been elected Vice President of the firm.

R. C. Alexander has been appointed Procurement Director for the Refinite Corporation, Omaha, Neb. He joined the company in 1949 as Production Manager. Before coming to Refinite, he was Purchasing Agent for Rheem Manufacturing Co. in Los Angeles, Calif. He is a graduate of the University of California.



R. C. Alexander

E. F. Gormsen has been appointed Director of Purchases for the Chevrolet Motor Division, Detroit, Mich., succeeding the late Gerard M. Haley.



E. F. Gormsen

Mr. Gormsen, who has been with Chevrolet 26 years, started as a shop clerk in the Chevrolet Gear & Axle plant and has been in the purchasing department since 1933. He was a buyer in various departments there until 1937 when he was made Assistant Purchasing Agent at Gear & Axle, and in 1946 was made Purchasing Agent at Gear & Axle. He has been in Chevrolet Central Office as Purchasing Agent since October, 1949.

M. E. Hankins has been named Divisional Purchasing Agent in New York City for The Texas Company, to succeed F. G. Shlemmer, resigned. Mr. Hankins was formerly Divisional Purchasing Agent, Chicago.

E. C. Borg, Divisional Purchasing Agent, Los Angeles, for The Texas Company, has been transferred to Chicago to succeed Mr. Hankins, and Philip Hauck has been reappointed Divisional Purchasing Agent, Los Angeles.



in WIRE ROPE, too, extra strength demands the RIGHT KIND of muscle

Towering as high as eight feet on his hind legs, the Kodiak or Alaskan Brown Bear ranks as the most powerful animal of North America. Rugged muscle development makes him the feared and deadly fighter that he is.

In wire rope, too, the right kind of muscle is essential to ward off the destructive effects of abrasion, corrosion, bending fatigue, load strain and shock stress.

That's why in Wickwire Rope we make sure—through complete quality control—that you always get the right construction and lay of the rope... the right grade of steel and size of wire for long-lasting resistance to the rigors of your particular service.

See your Wickwire Rope distributor or contact our nearest sales office.

THE COLORADO FUEL AND IRON CORPORATION—Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Salt Lake City • Tulsa
THE CALIFORNIA WIRE CLOTH CORPORATION—Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane
WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia



1222

A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE

WICKWIRE ROPE

CF&I

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

WHEN

your gear specifications are tough do as others do—

Leave it to



because:

Perkins *custom-made* **Gears** *are made by an organization which has specialized in this field for over 30 years—a company you'll like to do business with!*

PERKINS MAKES: bevel gears, ratchets, ground thread worms, spiral gears, worm gears, helical gears, spur gears with shaved or ground teeth.



NOTE: A new product—the PERKINS PRECISION SPRING COILER. This patented coiler turns out precision springs—any type, shape, size from wire sizes .005 to .125. Complete data and prices upon request.

Charles A. Krieger has been appointed Director of Purchases for Sharp & Dohme, Incorporated, Philadelphia, Pa., according to an announcement by Henry W. Gadsden, Vice President and supervisor of purchasing functions.



Charles A. Krieger

Mr. Krieger, formerly Associate Purchasing Director, replaces Herbert B. Price, who recently retired after 44 years with the company, 26 of which were spent as Director of Purchases.



Herbert B. Price

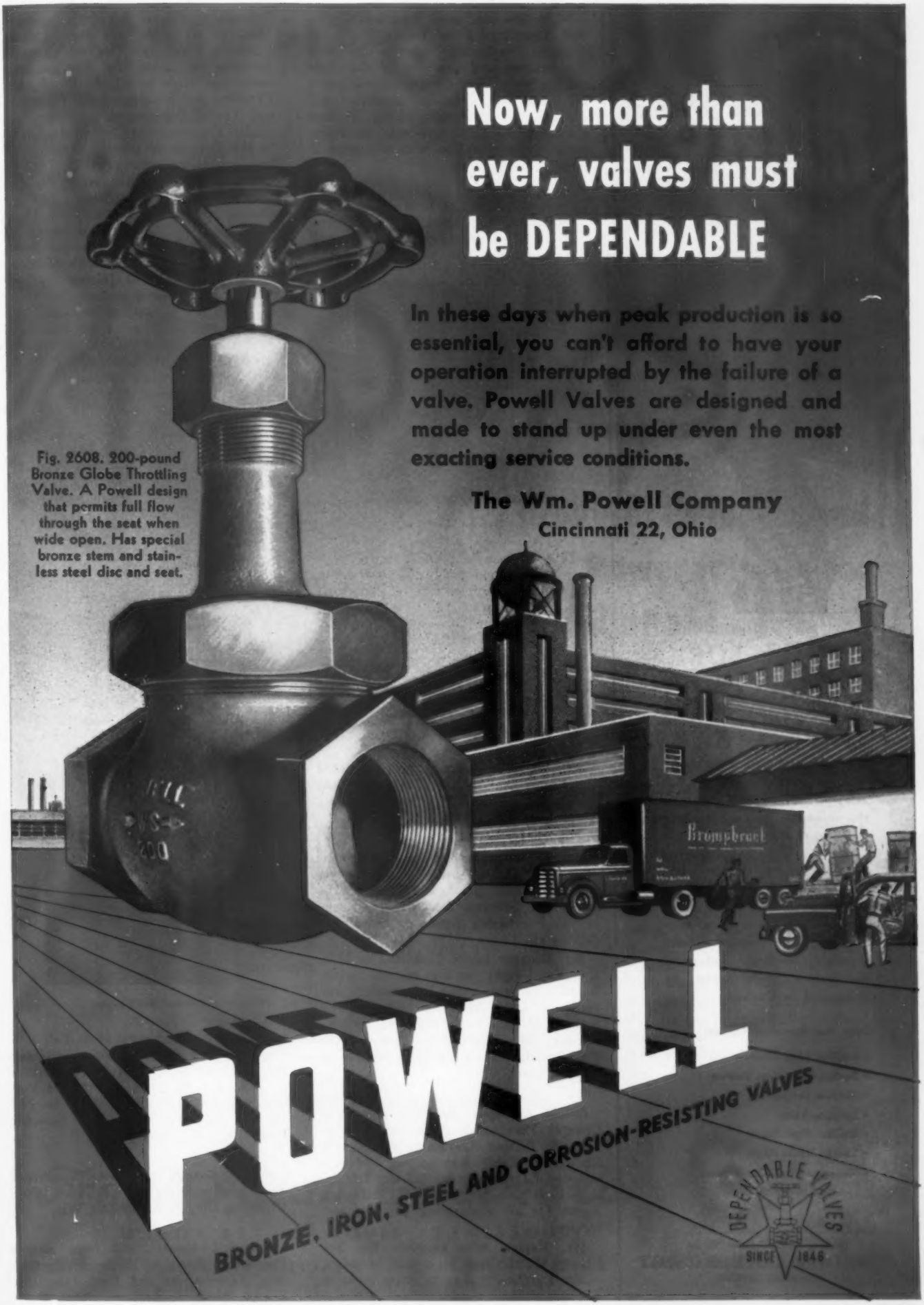
Mr. Krieger, a graduate of Cornell University, has been with Sharp & Dohme since 1934, serving at various times as branch manager in Chicago, Los Angeles, and Philadelphia, with four years out for service in the Air Force. In 1947 he was named Chief of Warehousing and Traffic, and in 1950, Associate Purchasing Director.

Leonard Benedict, Purchasing Agent and member of the board of directors of Amity Leather Products Co., West Bend,



Leonard Benedict

Wis., has been elected secretary of the company. He recently completed 25 years of service at Amity.


Now, more than ever, valves must be DEPENDABLE
In these days when peak production is so essential, you can't afford to have your operation interrupted by the failure of a valve. Powell Valves are designed and made to stand up under even the most exacting service conditions.
The Wm. Powell Company
Cincinnati 22, Ohio
Fig. 2608. 200-pound Bronze Globe Throttling Valve. A Powell design that permits full flow through the seat when wide open. Has special bronze stem and stainless steel disc and seat.
Brompton Biscuit
POWELL
BRONZE, IRON, STEEL AND CORROSION-RESISTING VALVES
DEPENDABLE VALVES
SINCE 1846



BUILT FOR STRENGTH!

For the toughest kind of fastening jobs, the complete Mac-it line of heat-treated, alloy steel screws will give you the strength you need *where you need it!*

Mac-it's 38 years' experience in the manufacture of these top-quality fasteners is your assurance of precision, uniformity and strength. Sold through leading industrial distributors from coast to coast and in Canada.

Other Mac-it products include:

- Hollow Lock Screws
- Socket Head Cap Screws
- Hollow Set Screws
- Stripper Bolts
- Hollow Pipe Plugs
- Socket Screw Keys
- Hexagon Head Cap Screws

. . . and many others

Marketed Nationally Since 1913 by
STRONG, CARLISLE & HAMMOND COMPANY
Cleveland 13, Ohio

W. N. Sims has joined American Cyanamid Company, New York, N. Y., as Division Purchasing Agent in charge of the location and purchase of fuels, including coke. For the past three years, Mr. Sims served as fuel engineer with Philadelphia & Reading Coal & Iron Company. He is a graduate of Pennsylvania State college with a degree in fuel technology.

George S. Ford has been promoted to Manager of Purchases of Soulé Steel Company, San Francisco, Calif. He will supervise the entire purchasing system



George S. Ford

for the company's San Francisco, Los Angeles, Portland and Seattle operations. He will be stationed at the company's main office. A graduate of Harvard University, Mr. Ford has spent his entire business career in the steel industry. He joined Soulé in 1946.

Roger Carr has been appointed Purchasing Agent of the Bargar Metal Fabricating Co., Cleveland, O.

Stephen J. Morris has been appointed Purchasing Agent for the Morse Chain Company's, Ithaca, N. Y., plant. He succeeds Robert W. Appleton, retired.

Albert W. Boegner has been appointed Purchasing Agent for the new Link-Belt Company plant at Colmar, Pa. F. Walter Skerrett succeeds Mr. Boegner as Purchasing Agent of the Philadelphia plant.

Mr. Boegner joined Link-Belt in 1936, and served eight years in manufacturing, followed by two years in material procurement and production control. The balance of his service has been in purchasing. Mr. Skerrett has been in the Philadelphia plant since 1927, serving in various posts.

Donald A. Kepler has been appointed General Purchasing Agent of General Tire & Rubber Company, Akron, O. Chester J. Zabik was named Purchasing Agent for rubber and all tire fabrics, and Emil F. Schnedarek, Purchasing Agent for all engineering projects and services.

Mr. Kepler, who succeeds the late Robert M. Graham, is a past president of the Purchasing Agents Association of Akron.

Joseph F. Parsons has been appointed Manager of Purchases for Monsanto Chemical Company's Organic Chemicals Division, St. Louis, Mo. The announcement was made by C. A. Wolfe, Vice President and Director of the Purchasing and Traffic Department.

Mr. Parsons, who has been assistant to the director of purchases since 1938, has established offices at the KXOX building in St. Louis, with the staff that has been connected with the purchasing activities for the Organic Chemicals Division. Central purchasing offices remain at 1700 S. Second Street.

Mr. Parsons has been with Monsanto since 1917. Prior to joining the purchasing and traffic department, he served 12 years as a production supervisor. He is a past president of the Purchasing Agents Association of St. Louis, and chairman of the Chemical & Allied Buyers' Group of the National Association of Purchasing Agents.

William C. Ayres has been named Manager of Materials for Hotpoint Company, Chicago, Ill. He will have responsibility for directing purchasing, inventory control, traffic and shipping, and materials scheduling. Formerly administrative assistant of the materials department, Mr. Ayres succeeds Albert H. Behnke, resigned.

Mr. Ayres, a graduate of Oberlin College, has had extensive experience in accounting, production and purchasing. He joined Hotpoint in 1947 as manager of inventory control.

Elmer A. Stevens, Director of Purchases for the B. F. Goodrich Company, Akron, O., has been named Treasurer of the company. Mr. Stevens joined Goodrich



Elmer A. Stevens

in 1928 on his graduation from Yale University with a B.S. in chemical engineering. He joined the purchasing division in 1930, and has been Director of Purchases since 1947. From 1940 to 1942 he was managing director of Goodrich Company, Ltd., Singapore.

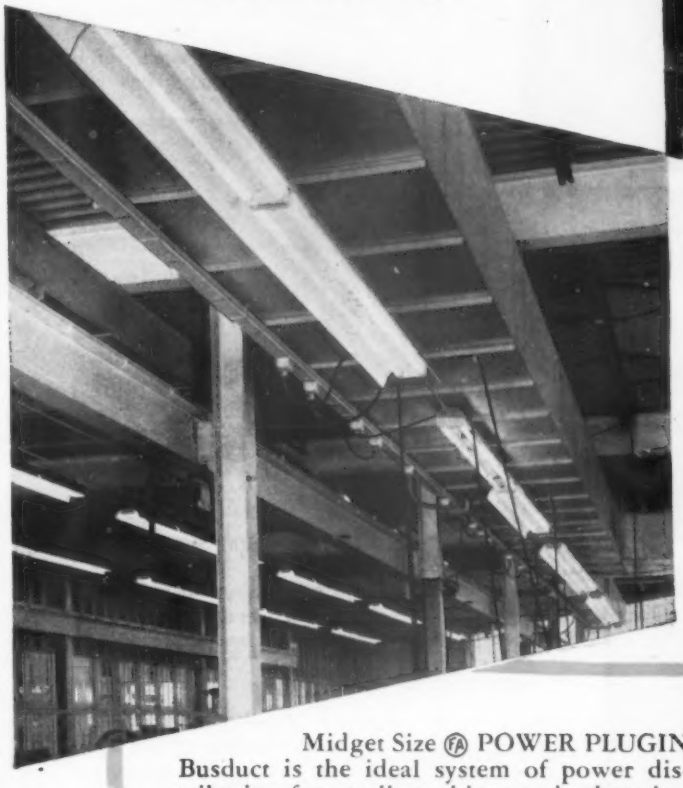
Norman Oxholm has been appointed Purchasing Agent of Edison Wood Products, Inc., New London, Wis.

Richard E. Shaner has been named Purchasing Agent of the operating division, Eastern Gas and Fuel Associates, Boston, Mass.

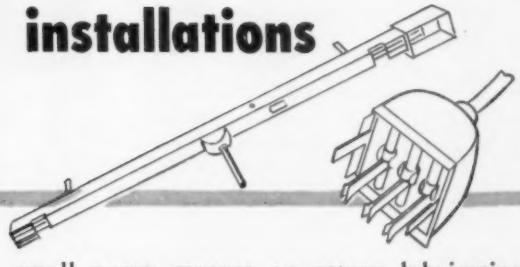
MIDGET SIZE

FA POWER PLUGIN BUSDUCT





provides "Plug in and Go" Power for smaller installations



Midget Size (FA) POWER PLUGIN Busduct is the ideal system of power distribution for small machines and other similar plant equipment.

Underwriters' Laboratories approved, this modern system of power distribution provides 60 amp., feeder capacity for 2, 3 or 4 wire systems for ½ to 3 H.P., 240 volt motors, AC or DC with conventional type fuses and 7½ H.P. maximum for motors with dual element fuses.

The 2 and 3 conductor types provide 220 volts single phase or three phase power to motors, while the 4 conductor type provides single or three phase power for motors and 120 volts for machine illumination or small pump motors on return lubrication systems.

Midget Size (FA) POWER PLUGIN Busduct is only 3½ inches wide and 2 inches deep in size. It is available in five and ten foot sections with plugin outlets every twenty inches thus permitting machines to be moved in and out of production lines without slowing down or delaying operations. Special lengths and closer spacing of outlets are also available for application on production benches and equipment.

Contact your nearest (FA) representative, listed in Sweet's, or write for Bulletin No. 704, for further information on this economical, flexible system of power distribution.

Frank Adam Electric Co.

P. O. BOX 357 ST. LOUIS 3, MISSOURI

Our 61st Year

Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER



THIS EMC MOTOR



Works Best With Money for GRANT ELECTROFARER





One of the interesting and unusual applications for EMC and CYCLOHM fractional h.p. motors is the brilliant invention Electrofarer, an automatic fare collection device used in public transportation systems.

Engineers of Money-Meters, Inc., manufacturers of the ELECTROFARER, had a tough motor problem. They required a lot of power in a small package, a motor that would perform millions of intermittent operations without servicing, without lubrication. EMC model 100 operated perfectly after a 15 year life test under simulated operating conditions. Inspection of brushes of motors used for two years showed no apparent wear. In fact, Money-Meters, Inc. has never had a single service problem with any EMC motor used in their equipment.

EMC Universal, Direct Current and Shaded Pole Motors and CYCLOHM Induction Motors are used by hundreds of leading manufacturers in more than 500 applications. If you use fractional h.p. motors in your products, check with us today. Write or phone for complete information — do it now!



Universal and Direct Current
(1/1000 to 1/2 h.p.)
Shaded Pole
(1/2000 to 1/15 h.p.)
Induction Types
(1/1400 to 1/4 h.p.)

HOWARD

Dept. PM-5 • HOWARD INDUSTRIES, INC. • RACINE, WISCONSIN

DIVISIONS: EMC ELECTRIC MOTOR CORP. CYCLOHM MOTOR CORP.

Emanuel Weintraub has been named Purchasing Agent of C.B.S.-Columbia, Inc., manufacturing subsidiary of the Columbia Broadcasting System. He will continue as Chief Buyer for the company's military program.

Paul E. White has been named Purchasing Agent for Bethany College, Bethany, W. Va.

Don McBride has been named Purchasing Agent for United States Rubber Co., at Washington, Ind.

Peter N. Maclaren has been appointed Purchasing Agent for Hooker Electrochemical Company, Niagara Falls, N. Y. Mr. Maclaren, a graduate of Bishop's College, York, England, has been with



Peter N. Maclaren

Hooker since 1936, when he was employed as an operator in the caustic department. He has been in the purchasing department since 1938, and was appointed Assistant Purchasing Agent in 1947.

Henry R. Michel has been named Director of Purchases of Celanese Corporation of America, New York, N. Y. He assumes all the duties formerly performed by F. W. Paffen, whose full time is now required by procurement activities for Celanese Central, S. A., recently established global organization of the company.

Mr. Michel had been with Westinghouse Electric Corporation since 1920, and was Assistant to the Vice President in charge of Purchasing. From 1938 to 1950 he was Purchasing Agent of the Westinghouse East Pittsburgh Works.

A. J. Lacock has been appointed Director of Purchases of Foster Wheeler Corp., New York, N. Y. He succeeds F. J. Swenson, who will remain with the company as special assistant on purchasing problems.

George W. Bohannon, Manager of Purchases and Stores of The Pullman Company, Chicago, Ill., has been named General Manager of the company.

Edward J. Borst has been appointed Purchasing Agent of the Martin-Senour Paint Company, Chicago, Ill.

New! Economical!

U. S. RUBBER'S Geometric Matting

with the 3-Dimensional Design



This smart, decorative floor covering is available in a wide variety of colors, saves work and wear. Smartly three-dimensional in appearance, it's trade-named "Geometric". This corrugated, durable rubber compound keeps feet from slipping, assures lasting protection to floors of any type, especially in bad weather.

The patterned corrugations in this remarkable new matting remove mud and slush from shoes. It can be easily cleaned, then rolled up and conveniently stored if required.

For more information, write to address below.







PRODUCT OF

U.S.RUBBER
SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION · ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Among the Companies You Buy From

Pittsburgh, Pa.—Aluminum Company of America. Harry L. Smith, Jr., has been made staff manager-product sales. Mr. Smith is a veteran of 38 years' service



Harry L. Smith, Jr.

with the company. W. T. Mitman, now with Alcoa's Washington, D. C. sales office, will succeed him as manager of sheet and plate sales.

St. Louis, Mo.—Titan Metal Manufacturing Company. R. Joe Hayes has been placed in charge of the company's office here at 3920 Lindell Boulevard. His territory will include Missouri, Iowa, Kansas, Arkansas, Oklahoma, southern Illinois, and northwestern Texas.

Pittsburgh, Pa.—Pittsburgh Plate Glass Company. Robert A. McLaughlin has been appointed director of sales for the company's new fiber glass division. During the past five years, he has been manager of the Mineola, N. Y. warehouse.

New York, N. Y.—Synthane Corporation. Harry A. Weiss and William J. Evert have been named to the district sales staff here.

Houston, Tex.—Electro Metallurgical Company. A new sales office has been opened here, with Herman J. Pfeifer as district manager.

Milwaukee, Wis.—Continental Can Company, Inc. Bruce R. Petersen has been appointed district sales manager here. He was formerly Boston district sales manager of Continental's eastern metal division.

Sewickley, Pa.—Capewell Manufacturing Company. William E. McCullough, of this city, has been appointed Tri-State sales engineer. He will be in charge of sales for western Pennsylvania, eastern Ohio and northern West Virginia. He succeeds C. D. Libby.

Philadelphia, Pa.—Leeds & Northrup Company. The district sales office here has been moved to new and larger quarters at 444 North 16th Street.

Los Angeles, Calif.—Acme Steel Products Division, Acme Steel Company. Key changes in the western area sales staff have been announced. Howard Gamble has been appointed special representative in the Los Angeles district for industry-wide development work in container reinforcement and carload bracing. Ray D. Vilas replaces him as sales representative here. E. J. McGraw, sales representative, has been transferred from the Pacific Northwest to the San Francisco district. Arthur B. Hall, sales representative, has been transferred from South Central California to San Francisco.

Milwaukee, Wis.—Cutler-Hammer, Inc. F. C. McNicol has been named division manager, industrial control sales. He has been with the company since 1935.

Kansas City, Mo.—Gustin-Bacon Manufacturing Company. F. H. Ebbert has been appointed vice-president and general sales manager. He will have charge of the company's four sales divisions—glass fiber insulation products, industrial, railroad and automotive.

Niagara Falls, N. Y.—The Carborundum Company. William J. Kingsley has been appointed assistant general sales mana-



William J. Kingsley

ger. Mr. Kingsley has been with Carborundum since 1922, and most recently was assistant sales manager of the bonded products and grain division.

Denver, Colo.—Raybestos - Manhattan, Inc. A new office and warehouse has been established here at 4500 York Street. Elton T. Fair is in charge.

Los Angeles, Calif.—Utica Drop Forge and Tool Corporation. A factory owned back-up stock of tools has been established here. Warehousing and shipping from the stock are handled by Utica's west coast representative, Dillon Stevens & Co., 3344 Emery Street.

Akron, O.—Chemical Division, Kaiser Aluminum & Chemical Sales, Inc. Russel T. Drennan has been named sales manager with supervision over sales and development of the division's complete line of basic refractory brick, mixes and mortars, along the Atlantic seaboard. Joseph A. Voss, Jr. has been named sales manager in charge of midwest sales, including Pittsburgh, Cleveland, Detroit and Chicago. Both managers will maintain headquarters at the general sales office here.

Cleveland, O.—The Weatherhead Company. Robert D. Walker has joined the company's staff of industrial sales engineers. He will cover Arkansas, Louisiana, New Mexico, Oklahoma and Texas.

Pittsburgh, Pa.—Aluminum Company of America. W. S. McChesney has been made manager of foil sales. He succeeds T. A. Torrence, who has held that position for the past 24 years. Mr. Torrence will continue actively with the company as chief technical consultant on foil sales. Mr. McChesney has been assistant district sales manager of Alcoa's New York City office since 1949.

Pittsburgh, Pa.—National Electric Products Corporation. J. L. Bauer has been appointed assistant to the vice-president and general sales manager, R. C. Bennett.

New Bedford, Mass.—Continental Screw Company. Dean B. Skillin has been assigned as sales representative in Delaware, Maryland, Pennsylvania, District of Columbia, and the lower part of New Jersey. Frank M. Hart has been assigned as sales representative in Indiana, Wisconsin and the upper Michigan peninsula.

Stamford, Conn.—The Yale & Towne Manufacturing Company. James D. Young has been advanced to the post of general sales manager for Yale locks and builders' hardware products. Eleven years with the company, he was most recently national sales manager for Yale powered hand trucks and handlift trucks.

Birmingham Ala.—Geo. P. Reintjes Company. R. D. Osgood, 544 American Life Building, has been named sales representative for the company's products in the Birmingham and Atlanta areas.

Los Angeles, Calif.—Whitney Chain Company. Anthony J. Swisler has been appointed regional manager for the west



Anthony J. Swisler

coast, including Nevada, Oregon and British Columbia. George A. Banton has been named district manager of the Southern California and Arizona territory. Both will have headquarters at Whitney's new office and warehouse here at 5400 Pacific Boulevard.

fuses finished faster with GULF CUTX B



Material—17 ST Aluminum Alloy; Operation—Turn, face, bore, and thread projectile fuse; Machine—6 spindle Conamatic; Cutting Oil—Gulf Cutx B, which proved superior to 4 other cutting oils by actual comparative tests; other benefits with Gulf Cutx B—better threads and longer tool life.

Another example of improved machining practice with Gulf Quality Cutting Oils! Call in a Gulf Sales Engineer today and let him help you find opportunities for greater production at lower cost through the use of the right Gulf cutting oil for the job. Write, wire, or phone your nearest Gulf office.

GULF OIL CORPORATION
GULF REFINING COMPANY
PITTSBURGH 30, PENNSYLVANIA

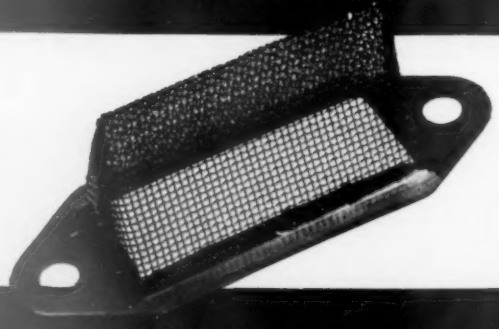
GULF SERVES INDUSTRY

NEWARK

Fabricated
WIRE CLOTH PARTS



Available — a well-equipped plant with highly experienced fabricators.



Available — mesh cloth and space cloth made in our own plant.



All under one roof

Do you require parts made with one or more pieces of mesh cloth or space cloth — anything from 4 inch openings down to 325 mesh (105,625 holes/sq. in.)?

Our experienced fabricating service should be of value. We are in position to handle volume order business and, if desired, will be glad to help in designing the part requiring the metallic cloth. We know how to insert and fasten metallic cloth to get best results. We carry many standard sizes of wire cloth in stock. We have ample loom facilities to weave special cloths if necessary. We can handle any wire of any malleable metal.

This fabricated parts division of our business has grown by leaps and bounds. We have had many repeat orders. It could be due to the quality of wire cloth used and the care with which this cloth is assembled into the parts being fabricated.

NEWARK *for* ACCURACY

Ask for General Catalog "D"

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. 1311 Widener Bldg. | San Francisco, Calif. 3100 19th St. | Chicago, Ill. 20 N. Wacker Dr. | New Orleans, La. 520 Maritime Bldg. | Los Angeles, Calif. 1400 So. Alameda St. | Houston, Texas P. O. Box 1970

North Chicago, Ill.—Fansteel Metallurgical Corporation. Charles Kuhn has been appointed sales manager. He was previously field sales manager.

Wakefield, Mass.—Synthane Corporation. The company's Boston sales office has been moved here, at 404 Main Street.

Chicago, Ill.—The McKay Company. Thomas S. Collins has been appointed electrode representative for the Chicago territory, with headquarters here at 1500 South Western Avenue.

Pittsburgh, Pa.—Forest Lumber Company. Edward J. Brown has been appointed sales representative in western Pennsylvania and Ohio.

Cambridge, Mass.—Boston Woven Hose and Rubber Company. Whiting N. Shepard has been promoted to Director of



Whiting N. Shepard

Sales. He joined the company in February of this year after 19 years with the Plaskon division of Libbey-Owens-Ford Glass Company, and until his promotion was head of plastic sales for Boston Woven Hose.

Kansas City, Mo.—Sterling Electric Motors, Inc. Herbert F. Ziegler has been appointed manager of the district office here.

Cleveland, O.— Minneapolis-Honeywell Regulator Company. J. M. Douglas has been named valve sales manager for the central region, with headquarters here.

New York, N. Y.—Hamilton Works, Baldwin - Lima - Hamilton Corporation. Robert S. Oberlander has been appointed factory representative for the application and sale of both Hamilton and Baldwin stationary and marine diesel engines on the eastern seaboard, north of Washington, D. C.

Los Angeles, Calif.—Johns-Manville Corporation. John B. Jobe has been appointed assistant district manager of the company's industrial products division here.

Erie, Pa.—Lord Manufacturing Company. George E. Tubb has joined the company as general sales manager. He was formerly manager of the order and contract division of Wright Aeronautical Corporation.



NEW

CONDENSED REFERENCE FILE OF

BAKELITE TRADE-MARK AND VINYLITE TRADE-MARK

PLASTICS AND RESINS

CONTENTS

MOLDING AND EXTRUSION MATERIALS
- Phenolic Plastics
- Vinyl Rigid Plastics
- Styrene Plastics
- Polyethylene Plastics
- Vinyl Elastomeric Compounds

PROTECTIVE COATING RESINS
- Vinyl Resins for Metal and Concrete Coatings
- Phenolic, Polystyrene, and Styrene Copolymer Resins for Coatings
- Vinyl Resin Coatings for Paper, Foil, Cloth
- Vinyl Dispersion Resins
- Polyethylene Resin Coatings

RIGID SHEETS
- Vinyl Rigid Sheets
- Vinyl Rigid Sheets for Signs

FLEXIBLE FILM AND SHEETING
- Vinyl Film and Sheeting
- Vinyl Cast Film

WIRE AND CABLE INSULATION
- Polyethylene Wire Insulation
- Vinyl Insulation for Wire and Cable

CALENDERING MATERIALS
- Vinyl Calendering Resins

LAMINATING, BONDING, ADHESIVE RESINS
- Phenolic and Polyester Laminating Plastics
- Phenolic and Polystyrene Bonding Resins
- Phenolic, Urea, and Resorcinol Resin Adhesives
- Vinyl Resins for Adhesives

PACKING MATERIALS
- Phenolic Foamable Resin

Helpful Information for Product Design and Production

This compact illustrated booklet contains a wealth of practical data on types of plastics and resins in greatest demand and use today. It discusses special characteristics such as shock-resistance, low electrical loss, heat-resistance, machinability, resistance to chemicals. It details their properties, such as water-resistance, molding shrinkage, impact strength, flexibility, specific gravity. It tells in what form—powders, solutions, granules, film, sheet and sheeting—different plastics and resins are used, and what colors and finishes may be obtained. It features the processing methods—molding, extrusion, calendering, coating, laminating and bonding—by which these materials are converted to a variety of end uses.

The booklet provides a clearer understanding of plastics, resins, and their uses for the non-technical reader—and serves as an invaluable ready-reference for the plastics user. It is a logical first-step in the selection of the right plastic for the job.

Dept. EM-25 BAKELITE COMPANY
A Division of Union Carbide and Carbon Corporation UCC
30 East 42nd Street, New York 17, New York

Please forward without cost or obligation G-19, "1953 Condensed Reference File of BAKELITE and VINYLITE Plastics and Resins."

Name_____ Title_____

Company_____

Street_____ City_____ State_____

BAKELITE
TRADE-MARKS
AND Vinylite BRAND
PLASTICS

TRADE MARK

BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation
UCC
30 East 42nd Street, New York 17, N. Y.

OVER ONE HUNDRED YEARS OF CONTINUOUS SERVICE. ROUNDS, SQUARES, FLATS, HEXAGONS, OCTAGONS

ANNOUNCING . . .

WHELCO M

OIL HARDENING TOOL STEEL

WL introduces *"Whelco"* – a new tool steel of M grade – a new steel of maximum toughness, hardness and strength – a steel to assure maximum results at low cost! *"Whelco"* offers great penetration of hardness, great toughness at high hardness, wide hardening range, fine grain structure, and desirable non-deforming characteristics. *"Whelco"* has good forging properties and is readily machinable in the annealed condition. All WL warehouses stock *"Whelco"* M tool steel in a wide variety of flats and squares. Call your nearest WL man for a trial order – the results will speak for themselves!

WL *steels are metallurgically constant. This guarantees uniformity of chemistry, grain size, hardenability – thus eliminating costly changes in heat treating specifications.*

Write today for your FREE COPY of the Wheelock, Lovejoy Data Book, indicating your title and company identification. It contains complete technical information on grades, applications, physical properties, tests, heat treating, etc.



BILLETS AND FORGINGS FOR PRODUCTION, TOOL ROOM AND MAINTENANCE REQUIREMENTS

WHEELOCK, LOVEJOY & COMPANY, INC.

Warehouse Service

CAMBRIDGE • CLEVELAND
CHICAGO • HILLSIDE, N. J.
DETROIT • BUFFALO
CINCINNATI

In Canada
SANDERSON-NEWBOULD, LTD., MONTREAL

HY-TEN and AISI

140 Sidney St., Cambridge 39, Mass. and Cleveland • Chicago • Detroit Hillside, N. J. • Buffalo • Cincinnati

Litchfield, Conn.—The Ohio Electric Mfg. Co. Michael Fabbri has been appointed New England area electric motor sales engineer, with headquarters here. He was formerly sales representative for Torrington Manufacturing Co.

New York, N. Y.—Plaskon Division, Libbey-Owens-Ford Glass Company. James N. Grove has joined the company's staff here as sales representative for both Plaskon polyester resins and L.O.F. fiber glass to the plastics industry.

Dayton, O. — The Parker Appliance Company. J. N. Fauver Company has been named distributor for O-rings manufactured by Parker.

Trenton, N. J.—Thermoid Company. Lester J. Hyland has been appointed sales manager of the industrial rubber division.



Lester J. Hyland

With Thermoid since 1925, Mr. Hyland was most recently manager of the western division industrial rubber products, with headquarters at San Francisco.

New York, N. Y.—Robert Gair Company, Inc. John H. Macleod has joined the container division as special representative.

Los Angeles, Calif.—Libbey-Owens-Ford Glass Company. Willis J. Gray has been named district sales manager here for the company's Fiber Glass Division. The division's offices are at 905 Architects Building.

Minneapolis, Minn. — C. A. Norgren Company. H. U. Rogness has been appointed district representative here, with headquarters at 1030 Second Avenue.

Aurora, Ind.—National Container Corporation. James J. Glynn has been appointed general sales manager of the company's Aurora plant, and will make his office at local sales headquarters in the Parkway Building, Indianapolis, Ind.

Pittsburgh, Pa. — Electro Metallurgical Company. Robert W. Crozier has been named regional manager in charge of the Pittsburgh and Cleveland offices.

Chicago, Ill. — Stewart-Warner Corporation. Leonard L. Robb has been named to head sales to car factories and other original equipment users of Alemite lubrication equipment and Stewart-Warner instruments.

Gummed Tape FIRST CHOICE AMONG CLOSURES



only GUMMED TAPE
gives such protection against

PILFERAGE AND DAMAGE

CLAIMS

Only by using gummed tape can you seal cartons *with your company name imprinted on the seal.* Petty thieves cannot pilfer without being detected, for they are unable to replace your exclusive tape. The tape warns your consignee not to accept the carton if its seal is broken. You don't risk blame for careless count when your shipment has actually been pilfered.

Gummed tape gives your merchandise better protection in transit, too. It seals out smoke, dust, moisture, and vermin. It adds reinforcement to your cartons where most needed: at corners and seams Because tape is a flexible closure, it helps your cartons better to withstand shock.

You build good will when you deliver goods protected against pilferage and damage claims with *gummed tape!*



This expert gives you better printed tape

Your Orange Core dealer is an expert on gummed tape and sealing problems. He has long experience in *printed* tape. At no obligation, he'll be glad to help you work out an exclusive imprint that will safeguard your shipments, and add real sales appeal too.

His tape—Orange Core—is the world's largest seller, because of its unvarying high quality. This high quality is possible because every step from tree to tape is controlled by Hudson. Why not phone your Orange Core dealer about your sealing problems today . . . or write directly to Hudson.

Available plain or printed, in choice of widths, weights, lengths and colors.

ORANGE CORE
Copyr H P & P Corp
GUMMED SEALING TAPE

HUDSON PULP & PAPER CORP., Dept. 22, 505 Park Avenue, New York 22, N.Y.



CHAMPION LAMP WORKS
LYNN, MASSACHUSETTS

Please mail *Free File Folder* H on planned cleaning and group replacement.

Name ..... *Position* .....
Company .....
Street .....
City ..... *Zone* ..... *State* .....

Fairfield, Ala.—Tennessee Coal and Iron Division, United States Steel Company. An additional division, the secondary products division, has been created in the sales department. Robert J. Thomas has been appointed manager of the new agency, which will handle the sale of second quality sheet and tin mill products.

Pittsburgh, Pa.—Continental Foundry & Machine Company. W. C. Berg, Jr., has joined the company as sales engineer. He was formerly eastern division sales manager of Laclede Christy Company.

Chicago, Ill.—F. J. Stokes Machine Company. Richard T. Voelz has been appointed field representative in the company's sales office here.

Detroit, Mich. — Rinshed-Mason Company. Lyle E. Frohberg has been appointed general sales manager, succeeding William R. Barrett, who was made vice-president and general manager of the Detroit plant. William L. Vyn becomes sales manager of the industrial finishes division.

Atlanta, Ga.—The Billings & Spencer Company. J. B. Lyons has been named direct southern sales representative, with headquarters here.

Philadelphia, Pa.—The Yale & Towne Manufacturing Company. Separate sales department for Yale's Worksaver and hand lift truck product lines have been established. John I. Somers has been named sales manager for Worksaver electrically-operated hand lift trucks. T. F. Moriarty, a pioneer in the hand lift truck industry, has been appointed sales manager for manually-operated hand lift trucks.

Cincinnati, O. — Charles Wm. Doepke Manufacturing Company, Inc. William C. Portman has joined the company as sales manager of the NesTier division. He resigned from the vice-presidency of Flow Equipment Co., Cincinnati, to assume the new position.

New Haven, Conn.—Frederic B. Stevens, Inc. Louis V. Gagnon has been appointed Massachusetts sales representative, working out of the company's New England branch here.

Rochester, N. Y.—Taylor Instrument Companies. Ernest C. J. Purton has been named sales manager for the commercial sales division. He succeeds the late W. Maben Griffith.

Cleveland, O.—Brunner Manufacturing Company. A. L. Haldeman has been appointed district manager here.

Cleveland, O.—National Screw & Mfg. Co. George F. Jenkins, formerly general sales manager, is now vice-president, sales. Robert E. Black has been named sales manager. Kenneth A. Miller succeeds him as assistant sales manager.



Phister Fire Extinguishers, featuring "all copper and brass construction," are made in a variety of portable sizes and are readily recharged after use. Copper and copper-alloy components provide high resistance to corrosion. Other Anaconda Alloys are used for valve parts, packing nuts, couplings, bushings, gage guards, hose clips, pump parts, etc.

"BUILT-IN" FIRE-FIGHTING POWER *that lasts*

In the home or plant, the cry of "fire" is always frightening, and infinitely more so if the extinguisher fails to work.

Based on several such experiences, and goaded by the conviction that "any fire costs more than a dependable fire extinguisher," founders of The Phister Manufacturing Company of Cincinnati, way back in 1918, decided to design an extinguisher "superior to any on the market" and combining these four *musts:*

1. It must maintain constant air pressure—without pumping.
2. It must be ready to go into operation instantly . . . even after years of disuse.
3. Air pressure and liquid level gages must indicate condition at a glance.
4. Most important, dependable, corrosion-resistant metals must be used to eliminate the most common cause of failures.

Since the first Phister Extinguisher was built to these specifications, there has not been a single record of failure by corrosion.

Over the years, The American Brass Company has supplied Phister with Anaconda Copper and Copper Alloys in many commercial forms, filling precise requirements of corrosion resistance, close-tolerance dimensions and low-cost fabricating qualities. Perhaps our Technical Department could work with you in a similar way? Write The American Brass Company, General Offices, Waterbury 20, Connecticut. 8201

You can depend on

ANACONDA

COPPER & COPPER ALLOYS





MECHANICAL TUBING

PROMPT DELIVERY FROM STOCK

Call Murray's nearest warehouse for seamless cold-drawn mechanical tubing in carbon steel; also for seamless or welded stainless tubing in many analyses; size range . . . 1/8- to 14- inch O. D.

For aid in finding the tubing best suited to your particular need, consult a Murray representative. He may help you uncover new economies in the purchase of mechanical tubing.

WRITE FOR CURRENT STOCK BULLETIN

Other Murray products include carbon steel tubing and pipe for mechanical and pressure purposes; Welding and screw type pipe and tube fittings. Tube bending, upsetting, swaging.

A B MURRAY CO INC
ESTABLISHED 1845
ELIZABETH, N. J. McKEESPORT, PA.

INDUSTRIAL DEVELOPMENTS

Johns-Manville Corporation, New York, N. Y., which operates two asbestos mines in Canada, one of them the world's largest, plans immediate development in Africa of a third mine. The new Project, to be undertaken in the Victoria District of Southern Rhodesia, is part of the company's long range program to maintain adequate supplies of asbestos for many years to come.

Arthur Colton Company, Division of Snyder Tool & Engineering Company, Detroit, Mich., will establish a new plant in Mancelona, Mich. This will replace the plant previously occupied in Paducah, Ky. The new plant will continue the policy of making standard steel and premium steel punches and dies, and will specialize in the production of the high carbon, high chrome content, hard chrome plated units produced by proprietary techniques and with special equipment.

Skil Corporation is the new name of Skilsaw, Inc., Chicago manufacturer of portable electric and pneumatic tools. During its 28 years of existence, the company has expanded its product line from one portable electric saw to over 150 different tools.

North American Cyanamid Limited, Montreal, Can., has consolidated its several office and warehouse locations in Montreal into one new building where it will increase its scope of activities to meet Canada's sharply rising demands for industrial chemicals and pharmaceuticals.

Milford Rivet & Machine Company, Milford, Conn., has purchased the Pacific Rivet & Machine Company, Alhambra, Calif. The company will be known as Milford's Pacific Division. It manufactures tubular rivets, cold-headed specialties and rivet-setting machines.

Diagraph-Bradley Industries, Inc., Herrin, Ill., has added to its line of shipping room equipment and supplies the gummed tape dispensers and label moisteners formerly made by I. Link & Company, New York, whose dies, tools, fixtures and inventory have been purchased by Diagraph-Bradley.

General Electric Company has decentralized its Fractional Horsepower Motor Department into four separate subdepartments, each with a general manager. The sub-departments and their managers are: General A-C Motor, Lisle D. Hodell; Hermetic Motor, Ab Martin; Specialty Motor, Jack J. Clarkson; and Electric Sink and Laundry Motor, Carl W. Moeller. Headquarters for all four groups will be at Fort Wayne, Ind.

You're always right with AUTO-LITE Plastics



• Plastics and plastic-metal combinations are opening new fields in design as illustrated by these few of many assemblies made by Auto-Lite. Here under one roof at Auto-Lite's great Bay Manufacturing Division in Bay City are the technical skills and production capacity for a new art rendered in plastics. The artistic skill of Auto-Lite's Art and Style Division is available on matters of design and development. Address inquiries to:

THE ELECTRIC AUTO-LITE COMPANY
Bay Manufacturing Division
723 New Center Bldg., Detroit 2, Mich. • Bay City, Mich.
Tune in "Suspense!" CBS Radio Mons., CBS Television Tues.

PLASTICS • WIRE & CABLE • DIE CASTINGS • INDUSTRIAL THERMOMETERS

with KEX wiping towels...



"I decided long ago to stop buying scrap rags and waste by the pound and switch to Kex wiping towels because a lot of the stuff we were getting wasn't usable. It had no uniformity and the men had to pick and choose the right piece for every job. That isn't true with Kex—every square inch is usable.

"After the first few months of using Kex Service my month-end cost for wipers was down substantially! The men have a uniformly-sized, absorbent towel for every job. And we don't run the risk of scratching or damaging delicate precision machinery."



YOU DON'T BUY A THING—just pay a low monthly rental. Kex towels are distributed nationally—for complete information, see your Classified Telephone Directory for nearest Kex distributor, or write Kex National Service, 295 Fifth Avenue, New York 16, N.Y.

"KEX" NATIONAL SERVICE

REG. U.S. PAT. OFF.

KEX
REG. U.S. PAT. OFF.
NATIONAL SERVICE
A CALLAWAY MILLS PRODUCT
INDUSTRIAL WIPING CLOTHS

It isn't Kex unless it's imprinted with the Kex name

Borg-Warner Corp., Chicago, Ill., has acquired E. C. Atkins and Company, century-old saw manufacturing concern of Indianapolis, Ind. The company will be operated as the Atkins Division of Borg-Warner. A branch factory in Portland, Ore., is included in the transfer of ownership.

B. F. Goodrich Chemical Company, Cleveland, O., has started the first commercial use of a "cold" or low temperature polymerization process in privately-owned American rubber-making plants. The company announces that Hycar oil resistant rubbers made by the method are now available, and will provide longer product life and better performance. Although the making of rubber by low temperature technique was developed by Goodrich as early as 1940, it has been used only in government-owned GR-S plants until now.

Shakeproof, Inc., a division of Illinois Tool Works, Chicago, Ill., has opened a new plant in Des Plaines, Ill., for the production of metal fastening devices and special precision stampings. The new



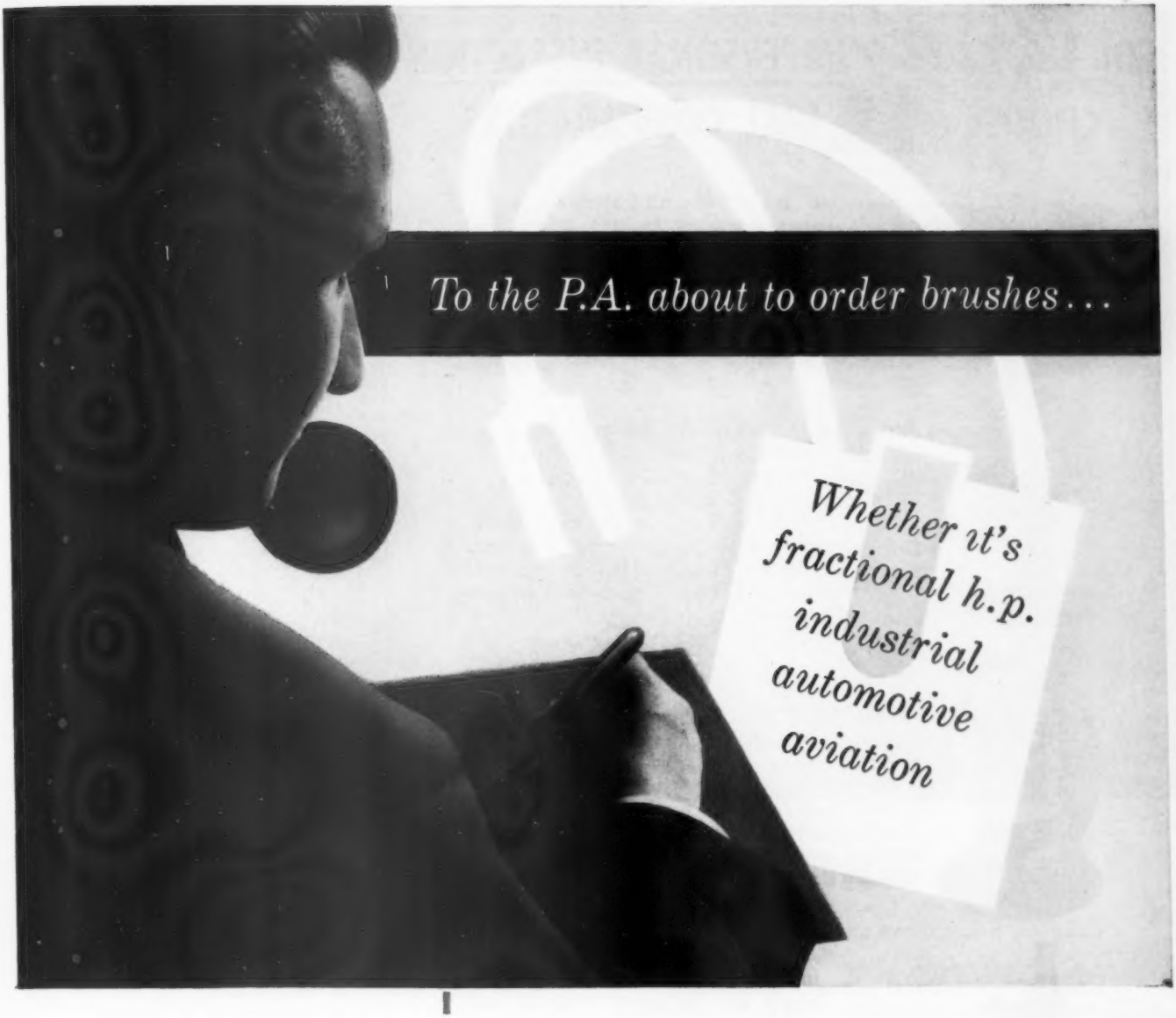
New Shakeproof Stamping Plant

plant makes possible an expansion of the defense tooling program of the parent company. Manufacturing space made available in Chicago by concentration of stamping operations in Des Plaines will be devoted to the production of gear measuring machines, metal cutting tools, and machine tools.

The Carborundum Metals Company, Inc., a recently formed subsidiary of The Carborundum Company, will soon break ground for the construction of a new plant for the production of zirconium and hafnium sponge metals. The plant will be located just outside the village line of Akron, N. Y.

American Brake Shoe Company has started production at its new steel forging plant in Azusa, Calif., operated by the AmForge Division of the company. The plant is expected eventually to produce from 1,000 to 1,200 tons of forging per month. Initial production will be 57 mm. and 75 mm. shells. Other ordnance material, aircraft parts, and regular commercial forgings will be in production in the near future.

Olin Industries, Inc., has established its ninth operating division, the Ramset Division. It will be responsible for the development, production, and sale of powder-actuated tools, fastening studs and accessories. The division will operate the following Olin subsidiaries: Ramset Fasteners, Inc.; The Stemco Corporation, and Portable Industries, Inc., all located at 12117 Berea Road, Cleveland, O.



A Speer *application-tested* brush for every use

motors • ignition systems • power plants
generators • rotary converters
power tools • starters • subways
accounting machines • windshield wipers
Diesel locomotives
household appliances

SPEER Carbon Co.
St. Marys, Pennsylvania
SUBSIDIARIES:
Jeffers Electronics, Inc. Speer Resistor Corp.
International Graphite & Electrode Corp.

Try Speer first!

Why Speer? For several reasons. From Speer you can be sure of getting brushes made precisely to conform to *your* specifications.

Every step in manufacturing... extruding, molding, baking, finishing... is carefully controlled in Speer's own plants. Each type of brush is *application-tested* two ways. First in our own laboratories... then in hours and hours of on-the-job operation.

All this care in production and testing means the P.A. can rely on order after order of Speer brushes to give the same high performance, even under the most difficult operating conditions.

Write today for our free booklet, "Speer Carbon Products."

FOR *Strictly* IMPERSONAL INSPECTION CHOOSE AMES DIAL COMPARATORS

Ames Dial Comparators make the inspection of duplicate parts an extremely simple, rapid and accurate operation. Ames Comparators are strictly impersonal in their accuracy — the results being in no way dependent on the skill or judgment of the operator. The pressure of the gauging members against the work is mechanically determined and therefore uniform.

Check the Ames Dial Comparators shown — one of them may solve a Quality Control problem for you.



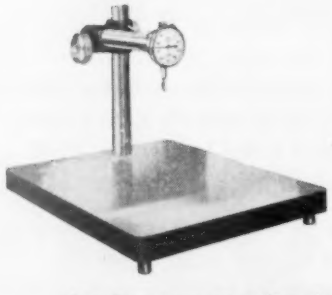
Ames No. 1 Dial Comparator is an easily adjustable bench model that measures objects up to 2" in cross section. The table bracket may be quickly located and locked in position on the column. The table itself may be further positioned and locked for final fine adjustment. This comparator is designated *Ames No. 1W* when equipped with dead-weight contact pressure and contact area to ASTM specifications for measuring resilient materials, such as rubber, plastics, etc.



Ames No. 2 Dial Comparator is a compact, stable bench model for measuring non-yielding materials — sheet metal, glass, hard rubber. The 2" diameter table is adjustable to bring pointer to zero. *Ames No. 2W* is similar to the Ames No. 2, but is furnished with dead-weight contact pressure and contact areas to ASTM specifications for checking textiles, plastics, sheet rubber, etc.



Ames No. 13 Dial Comparator features flat-ground, cast-iron base of ample size for using V-blocks and locating fixtures for checking rounds, flats and odd shapes. Also, the No. 13 can be fitted with a fine adjustment for close setting. Accurately adjustable bracket holds any Ames Micrometer Dial Indicator.



Ames No. 130 Dial Comparator is designed especially for inspecting comparatively large parts. For this reason, the flat-ground steel base, the adjustable indicator support on which can be mounted any Ames Micrometer Dial Indicator, and the upright column are proportioned to suit the user's particular requirements.

Send us your Quality Control job specifications, and we will supply complete details and proposal without obligation.

Representatives in principal cities. B. C. AMES CO. *31 Ames Street Waltham 54, Mass.*

Mfgr. of Micrometer Dial Gauges • Micrometer Dial Indicators

Aluminum Company of America will undertake the construction of a four hundred million dollar aluminum smelting project in Alaska as soon as the necessary land can be purchased and government approvals obtained. The Alaskan smelting facilities and electric power developments necessary to operate them would be situated in the Taiya Valley district, near Skagway, Alaska. Financing would be done entirely with private capital. The Taiya development would require about four years for completion, and would eventually offer employment for approximately 4,000 people when full-scale operations were under way.

Taylor Fibre Company, of Norristown, Pa. and La Verne, Calif., has begun construction of a plant addition at Norristown to increase facilities for the manufacture of vulcanized fibre. The current project will increase by over 20% the total floor space available at the plant.

Precision Castings Company, Inc., Fayetteville, N. Y., has acquired the Bradley-Edlund Corporation, Cortland, N. Y., manufacturer of forging hammers, standard and special purpose drilling and tapping machines, and other types of special purpose machinery.

Rotary Lift Company, Memphis, Tenn., has formed a new division to specialize in hydraulic lifts for industrial uses. It is headed by Jack E. Burch as sales manager.

Coleman-Pettersen Corporaton, and **Fanner Metal Products Company,** both of Cleveland, O., have merged. Fanner Metal Products Company-Coleman Division, has been formed as a result of the consolidation. It will expand Coleman-Pettersen's line of metal advertising displays, wire baskets, stampings and appliance component parts into all types of wire and metal products manufacturing.

Westinghouse Electric Corporation has completed all building construction for its new electric tube plant and division headquarters at Elmira, N. Y. Products to be manufactured in the new plant include television picture tubes, and transmitting, industrial and special purpose tubes for both commercial and military applications.

American Wood Products Corp., Marion, S. C., subsidiary of The American Box Company, Cleveland, O., has acquired a new mill at Millry, Ala., to increase veneer supplies for stepped-up container production at both plants.

Chemotec Division, Eutectic Welding Alloys Corp., Flushing, N. Y., has entered into an agreement with the Ciba Company, Incorporated, to exploit the processes developed from a line of materials that perform unique functions in bonding metals. The products bind metal to metal, metal to glass, fabric to metal, or glass to wood. Chemotec will manufacture and market under Ciba license, using its basic materials and processes.



a matter of confidence

Specialists who designed this speed reducer entrusted production of its bronze worm gear blank to other specialists.

Foote Bros. Gear and Machine Corporation, Chicago, leading producers of Speed Reducers, Gears, and other quality Power Transmission Components for practically any industrial requirement, identify themselves with the phrase "BETTER POWER TRANSMISSION THROUGH BETTER GEARS."

For over twelve years, Foote Bros. have purchased thousands of ½ pound to 1500 pound non-ferrous gear blanks from National Bearing Division—confidently entrusting their reputation and industry leadership to special foundry skills for which National Bearing is famous.

And Foote Bros. confidence is well placed.

National Bearing's proven ability to mass produce exceptionally fine-grained, non-ferrous castings, free from blow holes and sand inclusions, can be depended upon under even the most exacting engineering and manufacturing specifications.

As a typical customer service-plus, National Bearing Division's engineers and foundrymen recently designed, and produced for customers like Foote Bros., a bronze gear blank that contains even higher physical properties.

Through a new foundry technique, National Bearing imparts greater hardness, finer grain, and more tensile strength to the bronze gear blank ring, to a depth below where the teeth are cut. In addition, this new process gives such extra advantages as higher uniformity, closer tolerances, and economy of stock.

If your product requires special mass-produced non-ferrous castings or bearings, National Bearing Division has the foundry facilities, experience, and skill that will insure better product performance, and may possibly lower product costs through production-run economies. You are invited to write to National Bearing Division for complete information.

AMERICAN Brake Shoe COMPANY

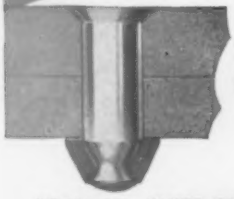
NATIONAL BEARING DIVISION

4940 Manchester Avenue • St. Louis 10, Mo.

PLANTS IN: ST. LOUIS, MO. • MEADVILLE, PA. • NILES, OHIO • PORTSMOUTH, VA. • ST. PAUL, MINN. • CHICAGO, ILL.



PHEOLL
hi-shear
RIVETS
JOIN VITAL AIRCRAFT PARTS FASTER-BETTER



REGULAR, CLOSE TOLERANCE AND INTERFERENCE FIT TYPES

INSTALLED 5 TIMES AS FAST AS BOLTS

Save both weight and time in aircraft assembly by using Pheoll Hi-Shear Rivets. These precision made fasteners are easy to install and provide maximum shear strength when critical parts are joined.

PHEOLL'S EXTENSIVE MANUFACTURING FACILITIES provide the aircraft industry with a constant source for alloy steel, stainless steel and 75ST Aluminum Alloy Hi-Shear Rivets in all types and sizes.

Partial List of Styles Available

NAS 177 100° Countersunk Head
NAS 178 Flat Binding Head
HS 2R7 Close Tolerance 100° Countersunk Head
NAA 2R6 Stud Rivets
HS 11 Brazier Head
HS 23 Close Tolerance 100° Countersunk Head—75ST Aluminum Alloy
HS 26 Flat Binding Head—75ST Aluminum Alloy
HS 27 Close Tolerance 100° Countersunk Head—Close Tolerance Shank
HS 28 Flat Binding Head—Close Tolerance Shank
HS 37 Close Tolerance 100° Countersunk Head—Close Tolerance Shank—Minimum Tensile Strength 160,000 p.s.i.
HS 38 Flat Binding Head—Close Tolerance Shank—Minimum Tensile Strength 160,000 p.s.i.
HS 47 Close Tolerance 100° Countersunk Head — Interference Fit — Minimum Tensile Strength 160,000 p.s.i.
HS 48 Flat Binding Head—Interference Fit —Minimum Tensile Strength 160,000 p.s.i.

NOTE: Other types made to customer's specifications. Ask about Hi-Shears for industrial use.

Write for Free Catalog and Engineering Data Sheets

PHEOLL SCREWS BOLTS NUTS

Coal Solely Used for Producing Chemicals

Coal Hydrogenation Process to Make Many of the Aromatics Available in Commercial Quantities

For the first time, a chemical company is using coal as a raw material for the sole purpose of producing chemicals. On a 20-acre site at Institute, W. Va., near Charleston, Carbide & Carbon Chemicals Company, a division of Union Carbide and Chemicals Corp., is operating a new $11 million pilot scale coal hydrogenation plant to determine what specific coal hydrogenation chemicals can be produced economically.

According to Carbide's president, Dr. J. G. Davidson, if the experimental unit comes up to expectations, the company will build full-scale units which might cost as much as $500 million and would treat thousands of tons of coal a day.

Chemicals from coal will have a great effect on the aromatic half of the chemical industry. Up to now it has been limited because the production of important chemicals for dyestuffs, perfumes, rubber, plastics, plasticizers, surface coatings, and synthetic detergents depended on the amount of coke needed for steel. Except for some benzene, toluene, and cresylic acids from certain petroleum cracking operations, the only source of the basic raw materials for the entire aromatic chemical industry are coal tar and light oil from the coke ovens. The demand for these chemicals is increasing and the market for some aromatic chemicals is expanding by 25 to 36 percent a year.

Carbide expects its coal hydrogenation process to make many of the aromatic chemicals available in large commercial quantities for the first time; ultimately at far lower prices than at present. This in turn will permit new industries and new uses for these products to develop. Production of many heretofore typically coal-tar-derived raw materials is economical enough to compete with coke oven products.

Refining techniques have been simplified to the point where they can be run continuously. Over 100 chemicals have been identified in the primary product, many of which are commercially recoverable. Economical production of certain well-known chemicals has been increased many fold over that obtained per ton of coal from by-product coke ovens. From one ton of coal, Carbide states that they can produce 5 to 8 times as much naphthalene as the by-product process; 60 to 80 times as much phenol, and 300 to 500 times as much of the higher amines such as quinoline. Carbide expects to be in position to market chemicals from the pilot plant within a very few months.

Drying Made Practically Instantaneous

New Method Developed by Armour Research Foundation Dries Coatings in Two to Twenty Seconds

You can dry many paints, inks, and varnishes as fast as you can say "sulfur dichloride vapor" with a new process developed by two scientists at Armour Research Foundation of Illinois Institute of Technology, Chicago.

Where current industrial drying methods (heat or solvents) take hours, the new process, called "Chem-Dry," does the job in from 2 to 20 seconds.

Clark E. Thorp, chairman of chemistry at the Foundation, and Layton C. Kinney, assistant chairman, developed the process for Meyercord Co., of Chicago.

The vapor makes drying practically instantaneous, Thorp explained. It reacts with pigment oils as coated materials are transported through an enclosed drying chamber on an endless belt.

The drying period depends upon the paint, ink, or varnish used and the material it coats, which may be paper, cloth, metal, wood, glass, or plastic, he added.

After treatment in the chamber, coated materials are dust and tack free (not sticky), can be handled, stacked, packaged, or given a second coat. To the scientist this is "hardening" or drying to a degree.

Meyercord engaged the Foundation to find an improved method of drying decal inks, which take 24 hours to as much as a week to dry by conventional methods. Thorp and Kinney investigated more than a dozen chemicals and other methods of drying, including electron bombardment, infra red, ultra violet, and dielectric heating.

Sulfur dichloride vapor, which dries decal sheets in 2 seconds, proved to be the answer. Subsequently, the process was extended to other coatings and materials.

Sulfur dichloride is cheap, about 11 cents a pound.

The new process, which does not damage paper or many other coated materials if promptly purged, achieves two things, Thorp said. It speeds up production and releases plant space formerly used for drying for other purposes.

The two scientists obtained both U. S. and foreign patents on the process, which have been assigned to Meyercord.

You CAN'T MISS



when you buy DOERR MOTORS



If you haven't had a chance to investigate this versatile line of motors regularly used by an outstanding list of machinery manufacturers, it would be well worth your while to learn about the many advantages of using Doerr Motors. Special features and modifications of all types can be furnished, as well as a complete line of standard NEMA ratings. *Write today for more information on DOERR MOTORS.*

Pump motor with special machined face mounting and stainless steel shaft with threads and Woodruff keyway.

Electric Motors from 1/30 to 5 hp. Standard, or designed to your specification.

YOU GET **MORE** WITH *DOERR!*

DOERR
Electric Corporation
CEDARBURG, WISCONSIN

DOERR ELECTRIC CORPORATION, Cedarburg, Wisconsin Dept. P

Please send your new bulletin on electric motors, without obligation.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

THERE'S ONLY ONE JOMAC

WHY? Because Jomac controls all phases of the production of Jomac Work Gloves . . . the purchase of yarn, knitting of cloth, finishing of cloth, manufacture of the gloves . . . thus guaranteeing uniformly high quality.

JOMAC Work Gloves are

WASHABLE. Jomacs can be used again and again.
REVERSIBLE. Fit either hand. Any two Jomacs are a pair.
FLEXIBLE. They stay soft and pliable even after many washings.
LONG LIVED. Jomacs outwear ordinary work gloves 700%.
PROTECTION. Guard hands against rough and sharp edges, heat and cold.

SEE US AT THE

National Safety Congress & Exposition, The Conrad Hilton, Chicago, Ill., Oct. 20-24, Booth 216.

Or the

National Metals Exposition, Convention Hall and Commercial Museum, Philadelphia, Pa., Oct. 20-24, Booth 1257.

THESE JOMAC DISTRIBUTORS ARE READY TO SERVE YOU

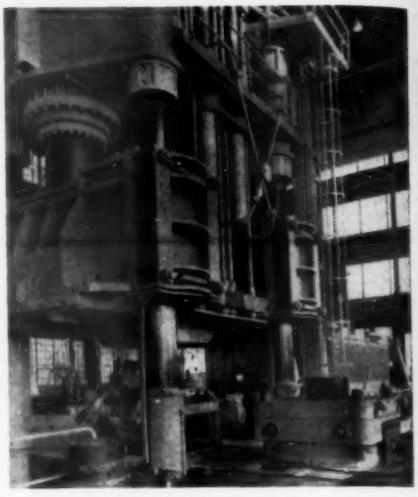
Call the one nearest you for samples and prices.

Allied Safety Equipment Co., Inc., Houston, Tex.
American Allsafe Co., Inc., Buffalo, N.Y.
Boyer-Campbell Co., Detroit, Mich.
E. D. Bullard Co., Los Angeles and San Francisco, Calif.
Carey Machinery & Supply Co., Baltimore, Md.
Dayton Safety Supply Co., Dayton, Ohio
Guardian Safety Equipment Co., Los Angeles, Calif.
Hodge Supply Co., Los Angeles, Calif.
Industrial Supply Co., Chattanooga and Nashville, Tenn.
Industrial Supply Co., Salt Lake City, Utah
Keelor Steel Inc., Minneapolis, Minn.
LaGrand Industrial Supply Co., Portland, Ore.
National Safety Products Co., Saginaw, Mich.
Noland Co., Inc., Newport News, Va.
Northwest Distributors, Inc., Seattle, Wash.
E. H. Notte Safety Appliances, East Orange, N.J.
Protective Equipment Inc., Chicago, Ill.
Rittoff Glove Co., Los Angeles, Calif.
Safety Engineering & Supply Co., Inc., Birmingham, Ala.
Safety Equipment Co., Denver, Colo.
Safety Inc., Kansas City and St. Louis, Mo.
Smalling & Co., Nashville, Tenn.
Standard Glove Co., Cleveland, Ohio
C. W. Thomson Co., Minneapolis, Minn.
Universal Safety & Fire Equipment Co., Inc., Salt Lake City, Utah
Wash-Rite Company, Inc., Indianapolis, Ind.
Woodward, Wight & Co., Ltd., New Orleans, La.
Welders Equipment Co., Tulsa, Okla.
McKenzie Stephenson Ltd., Winnipeg, Canada

C. WALKER JONES CO.
PHILADELPHIA 38, PA.

HEAT RESISTANT AND CORROSION RESISTANT ALLOY CASTINGS

Heat Resistant and Corrosion Resistant Alloy Castings in Industry, is the title of new 48-page publication issued by the International Nickel Co., 67 Wall St., New York, N. Y., of interest to users and potential users of stainless and heat-resistant alloys in cast form. It discusses typical compositions regularly produced, with their applications, limitations and types of service for which they are suitable. Over 175 photographs illustrate applications of typical alloys by industry. Charts compare creep strength of various alloys, resistance to corrosion in certain media, and to oxidation at elevated temperatures. Tables of composition list principal Alloy Casting Institute designations as well as certain proprietary alloys.



The huge press is set up for ingot piercing, first step in forming a hollow forging. Ingot is placed in piercing pot (right) which slides under the press where it is pierced by the stroke of the ram.

SIX STANDARDS AVAILABLE FROM PIPE FABRICATION INSTITUTE

The Pipe Fabrication Institute, Clark Building, Pittsburgh, Pa., announces publication of a standards bulletin having the title "End Preparation and Internal Machining for Machined Backing Rings for Butt Welds". This is designated as Standard ES1-1952 and supersedes the first standards bulletin issued by the Institute almost four years ago. This revised standard meets present-day high pressure and high temperature piping requirements; it includes design changes that minimize the amount of weld metal required and the resultant shrinkage stresses in the weld.

The Engineering and Standards Committee of the Pipe Fabrication Institute has prepared five other Standards of interest to designers, contractors and users of pressure piping. They are: "Method of Dimensioning Welded Assemblies" . . . "Standard Practice, Shop Hydrostatic Testing of Fabricated Piping" . . . "Standard Practice Cleaning Fabricated Piping" . . . and "Built-up Weld Metal Bosses."



Heave-Ho by Push-button with a ZIP

Handle it "thru-the-air"—faster for less

Do you still have places in your plant where skilled hands wrestle with heavy loads? That's tough on workers! Expensive, too! Consider the savings a Zip-Lift will bring you. One man can press buttons to handle loads up to 2,000 lbs. — faster, without effort — and at far less cost.

There are reasons aplenty why the Zip-Lift is America's fastest selling wire rope electric hoist. It has all the quality features that make it more usable, more dependable — and absolutely safe. Hang it up on a hook, jib, or trolley — beside machine tools, along assembly lines, around loading docks, receiving rooms, warehouses. The Zip will pay for itself over and over — and over again!



CALL YOUR ZIP-LIFT DEALER

or write for Bulletin

HARNISCHFEGER CORPORATION

4400 WEST NATIONAL AVENUE • MILWAUKEE 46, WISCONSIN

SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOUSES



use McLaurin-Jones Gummed Tapes to seal cartons

Shippers agree, the best tape for any job is the best tape you can buy. This, of course, means:

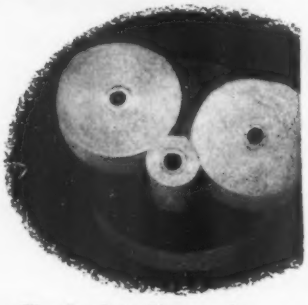
TANGLEFOOT SEALING TAPES

SUPER STANDARD · STANDARD

BLUE STAR SEALING TAPES

COMET SUPER STANDARD
SUNRISE STANDARD

THE FINEST THING IN TAPES — BY AMERICA'S OLDEST TAPE MANUFACTURER



The Perfect Closure for

- Shutting Out Dirt
- Resisting Moisture
- Cutting Expenses
- Ease of Application
- Reinforcing Cartons
- Reducing Pilferage

These two "toughies" are made with strong, flexible, long-fibred Kraft and refined animal glue . . . offering you maximum closure protection at a minimum cost.

Available plain or printed. Your paper merchant will gladly furnish samples and prices.

McLAURIN-JONES CO.

MAKERS OF FAMOUS GLASKRAFT SEALING TAPE, GLASKRAFT STRAPPING TAPE, SOLSEAL WATERPROOF TAPE, IDEAL STAY TAPE, HYFLEX SISAL TAPE AND STAYCOR BOX TAPE

BROOKFIELD, MASS. Offices in: New York — Chicago — Cincinnati — Los Angeles

Mills located at Brookfield & Ware, Mass. — Grand Rapids, Mich. & Homer, La.

381 FIRMS HELP TO FILL ONE WESTINGHOUSE DEFENSE ORDER

The widespread impact of defense subcontracting on industry was underlined recently when it was revealed that 381 firms participated directly in a single government contract awarded to Westinghouse Electric Corporation.

An analysis of an order for electronic equipment disclosed recently by E. T. Morris, Westinghouse subcontracting manager, showed that 44 percent of the $16,965,288 value of the contract had been passed along to subcontractors and suppliers.

The analysis revealed that 68.5 percent of this was allocated to "large business," with small business firms—less than 500 employes each—receiving the remaining 31.5 percent.

"As a means of showing the 'pebble-in-a-pool' effect started by our subcontracting activities," said Mr. Morris, "we also decided to study the subsequent subcontracting moves of the particular firm to which we had allocated the largest share of the contract."

This subcontractor, he said, had in turn spent 41.6 percent of his total contract value as follows: 36.7 percent with large businesses; 63.3 percent with small businesses.

"In all, 254 large and small businesses aided this single Westinghouse subcontractor in meeting the requirements of his share of the total original contract," said Mr. Morris. "A total of 381 firms participated directly in helping Westinghouse fill this one defense order.

"These figures clearly point up the importance of small businesses in meeting contracts calling for defense production. There is a partnership existing between large and small firms without which rapid output of defense products would be impossible."

* * *

NEW PHENOLIC MOLDING MATERIAL ELIMINATES CORROSION OF SILVER CONTACTS

Corrosion of silver contacts due to a chemical commonly used in the production of many phenolic plastics is claimed to be eliminated in a new material called Durez 15528 Black, according to an announcement by Durez Plastics & Chemicals, Inc., of North Tonawanda, New York. It is stated that this new development was brought about by the constantly increasing use of silver contacts because of closer operating tolerances being demanded in many electrical devices.

Durez 15528 Black is a general-purpose-type phenolic and has the same molding characteristics and physical properties as those currently being used in the average electrical application. "The major difference," says the manufacturer, "is that Durez 15528 Black has a somewhat shorter storage or shelf-life before processing into molded parts." Specific gravity of the new material is 1.39, mold shrinkage .006 (in. per in.). It is presently available in soft plasticity for easier flowing. It will preform readily in automatic machines and may be preheated by any existing methods.

The U. S. Steel Supply team that gives you *personalized service*



These people *specialize* in good steel service!

GOOD STEEL SERVICE is much more than a one-man job . . . it requires teamwork between specialists. Each of our warehouses has such a team ready to go to work to give you fast, trouble-free service.

Your U. S. Steel Supply salesman will put the members of this team to work for you. Call him for steel, tools, equipment, machinery, advice on the selection of the right type of steel, or assistance on production techniques with special steels. United States Steel Supply is a "one call" source of steel supply service . . . one call to our salesman puts an expert team to work to see that you get what you want—where you want it—when you want it.

YOUR "ONE CALL" SOURCE OF STEEL SERVICE

U.S. STEEL SUPPLY

UNITED STATES STEEL SUPPLY DIVISION, • UNITED STATES STEEL COMPANY
HEADQUARTERS: 208 So. LA SALLE ST., CHICAGO 4, ILL. WAREHOUSES COAST-TO-COAST

Warehouses and Sales Offices: BALTIMORE · BOSTON · CHICAGO · CLEVELAND · LOS ANGELES · MILWAUKEE · MOLINE, ILL. NEWARK · PITTSBURGH · PORTLAND, ORE. · ST. LOUIS · TWIN CITY (ST. PAUL) · SAN FRANCISCO · SEATTLE
Sales Offices: INDIANAPOLIS · KANSAS CITY, MO. · PHILADELPHIA · PHOENIX · ROCKFORD, ILL. · SALT LAKE CITY · SOUTH BEND · TOLEDO TULSA · YOUNGSTOWN

UNITED STATES STEEL

SAFETY ENGINEERING DEPT.
MEMO

• Gives non-skid protection in every direction
• at No Extra Cost!

A.O.Smith
100% Serrated
SAFETY GRATING



When Feet Slip...

they don't choose the direction of slip. A safe floor is one that never loosens its grip on a man's shoes. A safe floor is one that offers non-skid protection in every direction.

An A. O. Smith 100% serrated safety-floor won't sneak out from under a man. It's made with a grip that moves in from every direction. Look at the picture—with serrations on both the *bearing bars and the cross bars,* safety travels a two way street.

MAKE SURE OF SAFETY

A. O. Smith 100% serrated safety grating completely engineered and fabricated to your individual requirements is available in principal cities.

78th Anniversary 1874 - 1952

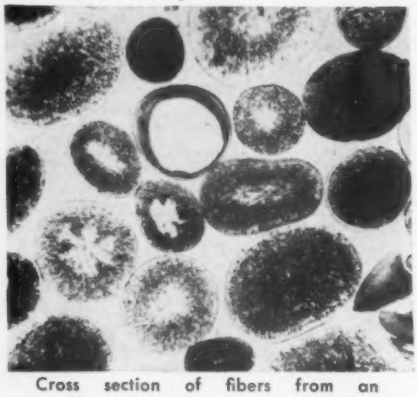
A.O.Smith
CORPORATION

Milwaukee 1, Wisconsin
New York 17 • Chicago 4 • Houston 2
Los Angeles 22
International Division, Milwaukee 1

How to Differentiate Between Types of Brush Bristles

National Bureau of Standards Develops Reliable Method for Differential between Hog Bristle and Other Animal Fibers such as Horsehair

A rapid, reliable procedure for differentiating between hog bristle and other animal fibers, such as horsehair, has been devised by Dr. S. B. Newman of the National Bureau of Standards. The NBS procedure, which is based on the difference in the distribution of pigment in the fiber cross sections, provides a more adequate basis for judging paint brushes and other bristle products than the rule-of-thumb methods that are commonly used in the trade.

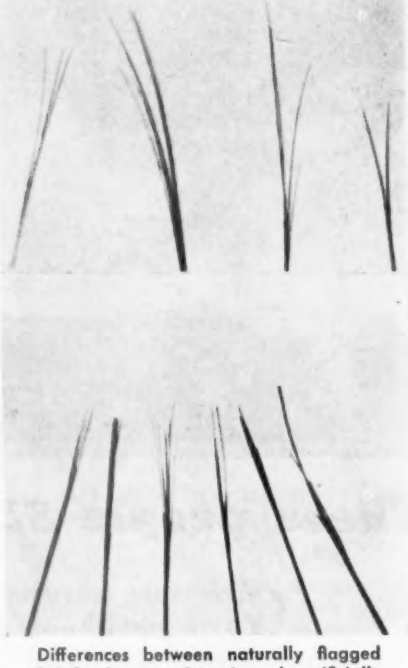


Cross section of fibers from an adulterated brush, showing horsehair (light centers) mixed in with bristles

In determining the fiber content of brushes and samples of bristle, the so-called "eye and feel" tests, based on the tester's previous experience in handling and dealing with the fibers, are most often employed. As the typical bristle is a flagged, tapered fiber, while horsehair is neither flagged nor tapered, it is not too difficult to distinguish a large percentage of the bristles from horsehair in this way. However, in every sample of bristle, particularly in the finer grades, there are many fibers which lack flags and in which the taper is negligible. For this reason, a more objective method has been needed for definite differentiation between these two fibers.

Samples of brushes containing 200 or more fibers were sectioned without difficulty by means of a conventional microtome. Individual fibers were embedded in methacrylate polymer before sectioning, using a process developed by NBS in 1949. The sections were mounted and the pigment distribution studied. It was found that in general the pigment in hog bristle is more dense at the center of the cross section and becomes more dilute at the periphery, whereas in horsehair the pigment in concentrated toward the periphery and exhibits little or no natural color in the central portion. These basic differences were found in all fibers regardless of the geographic origin of the animal, the particular hair type, or the part of the animal body from which the hair was obtained. Differences in the medullation of the two fibers also aid in their analysis. Many of the bristles are hollow while the horse fibers possess a cellular medulla.

Further studies showed that the pigmentation pattern of the fiber is a characteristic of the particular taxonomic family to which the animal belongs. Thus, other species of the horse family (Equidae) were found to exhibit the same pigmentation pattern as the domestic horse while other species of the pig family (Suidae) resembled the domestic pig in fiber pigmentation. On the other hand, when hair from the peccary, a member of a family (Tayassuidae) closely related to the pig family was tested, it was found to have a completely different type of cross section.



Differences between naturally flagged bristle (upper picture) and artificially flagged horsehair (lower) are readily detectable under the microscope.

Artificially flagged horsehair is often found in bristle brushes. Synthetic flags, as would be expected, were found on fibers with little or no taper. The flagging occurred practically at one point on the length of the fiber, and many branches, often a dozen or more, were found in the flag. At the point where the flag begins to form, the hair seemed to increase in diameter. Natural flags contained fewer branches divided at different levels from the main trunk.

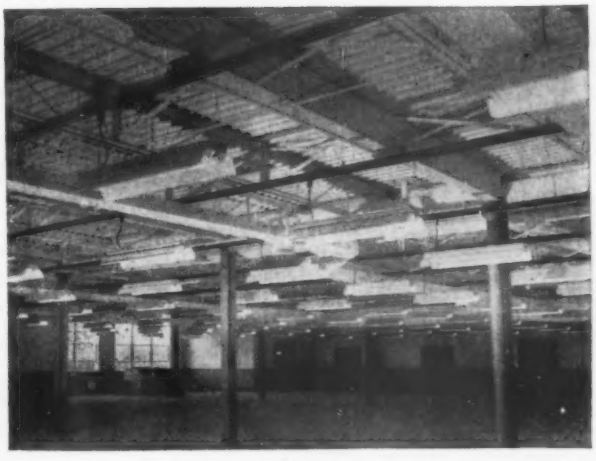
From the NBS studies, it was concluded that differences in pigmentation pattern may be used to differentiate between horsehair and bristle of all types except those that are naturally white or bleached. As the quantity of unpigmented fiber used in commercial brushes is relatively small, the pig-

(*Please turn to page* 316)

Does your plant measure its growth potential by the length of its electric cords?



1. CAN YOU PLACE LIGHTS, POWER TOOLS, MACHINES OR APPLIANCES WHERE THEY'RE NEEDED MOST or is their positioning inflexibly set by the length of their electric cords and the location of *fixed* outlets? Here, maintenance man Thomas George of Connecticut Manifold Company shows how easy it is to locate a lighting fixture *exactly* where it will do the most good, as he slips its plug into a run of LTG FLEX-A-POWER®, Trumbull's pre-fabricated trolley and plug-in busway that is *one continuous outlet.*



2. MODERN DISTRIBUTION SYSTEMS MUST BE FLEXIBLE, ready for future expansion or rearrangement of lighting fixtures or production tools. This installation includes almost 1000 feet of LTG FLEX-A-POWER leading to every part of 50,000 square feet of floor space. Fixtures and small electric tools can be easily moved along the busway or, should future changes demand it, busway sections can be easily dismantled and re-assembled into a new system.

3. WHOLE LINES OF TOOLS CAN BE RELOCATED or entire lighting systems rearranged with FLEX-A-POWER. Power tools as well as the lights in this machine shop get their power supply from the LTG line above. *Learn now how LTG FLEX-A-POWER can solve your low-voltage distribution problems.* It comes in two-, three-, or four-pole types rated at 50 amps, 300 volts a-c or d-c.



NO SHORTAGE—Your Trumbull distributor's supply of FLEX-A-POWER is backed by ample factory stocks to meet all your distribution needs.

Write for circular TEC-3 on LTG FLEX-A-POWER. And remember, Trumbull has FLEX-A-POWER of other types to handle *all* your distribution needs.

Trumbull Assures LASTING FLEXIBILITY in Power Distribution

TRUMBULL ELECTRIC

DEPARTMENT OF GENERAL ELECTRIC COMPANY
PLAINVILLE, CONN.

Bay State Taps, built for precision performance, satisfy all requirements of a good production tool . . . quality and quantity of threaded product . . . . . .



On nearby shelves of industrial supply distributors.

BAY STATE TAP & DIE CO.

MANSFIELD, MASS.

(*Continued from page* 312)

mentation method provides a firm basis for differentiation between bristle and horsehair in commercial products. Development of test methods for differentiating the colorless fibers is now under way at the Bureau.

NEW EDITION OF COPPER AND COPPER ALLOY SPECIFICATION INDEX

A revised edition of "Copper and Copper Alloy Specification Index", has been released by the American Brass Company, Waterbury 20, Conn. The index provides up-to-date specifications of the various national engineering societies and government agencies, including "Military" (Munitions Board, Department of Defense) specs.

The 28-page publication is divided into two sections. The first lists the most generally used copper alloys together with the applicable specifications of nine different agencies. The second lists specifications in numerical order with a brief description of the material as to alloy, grade, type, temper, anneal, etc.

NAVY TO TRAIN 200 IN PROCUREMENT

The Navy will give approximately 200 of its procurement personnel intensive three-week negotiators training courses this fall, Vice Admiral C. W. Fox, Chief of Naval Material has announced.

Objective of the courses is to improve naval procurement by training negotiators from the various Navy procurement activities in the broader aspects of pricing. Subjects to be stressed are price, cost and profit analysis, and selection and use of appropriate methods of pricing.

Most of the trainees will come from bureaus and offices in the Washington area. Others will come from field purchasing activities of the Bureau of Supplies and Accounts.

SIXTY-SIX SESSIONS AT PLANT MAINTENANCE CONFERENCE

Sixty-six separate sessions on maintenance problems, characterized as the most exhaustive treatment of the subject ever undertaken, have been scheduled for the Plant Maintenance Conference, which will be held at the Public Auditorium, Cleveland, January 19-22, inclusive. The sessions, twice the number conducted last year, will take place concurrently with the Plant Maintenance Show.

Maintenance problems in eleven industries will be discussed separately. These include automotive, chemical, food, foundry, paper, oil, printing, rubber, steel, and textiles—small and large factories. Virtually every type of equipment needed for maintenance operations will be on display.

Further information may be obtained from Clapp Poliak, Inc., 341 Madison Ave., New York 17, N. Y.



Better looking, better performing

The mirror-like finish and exact gauge of McLouth Stainless Steel gives you better production performance on every job.

McLouth Stainless Steel is manufactured in a wide range of grades and finishes and the exact chemical composition of the steel is determined for every order. It has a high resistance to corrosion, heat and wear to give your products better appearance and longer life.

Ask for a McLouth Service Engineer to analyze your stainless requirements. When the product you make today, or the product you plan for the future calls for stainless, *make it with McLouth Stainless Steel.*



McLOUTH STEEL CORPORATION

DETROIT AND TRENTON, MICHIGAN

HOT AND COLD ROLLED STAINLESS AND CARBON SHEET AND STRIP STEEL

Your *SAFEST* buy in wire rope blocks



Load-Rated!

Here's a common-sense way to avoid the risk of accidents. American CROSBY Blocks are LOAD-RATED . . . safe working capacity permanently embossed in the side plate . . . so your men can *know* what load the block will carry.

PACKAGED

Your load-rated CROSBY blocks come in individual, factory-sealed cartons. Easy to buy, easy to stock and handle; delivered to the job in perfect working order. Sold by leading distributors everywhere.



American CROSBY

Load-Rated Wire Rope Blocks

Made by the makers of genuine Crosby Clips:

AMERICAN HOIST & DERRICK CO., ST. PAUL 1, MINNESOTA

GENERAL ELECTRIC ANNOUNCES EXPANSION OF MINIATURE RESISTOR LINE

Expansion of its line of miniature resistors to give greater coverage of the volt-ampere characteristics range has been announced by the General Electric Company's Distribution Transformer Department, Schenectady, N. Y.

The miniature resistors, whose electrical resistance decreases with increases in applied voltage, are designed for use as a stabilizing influence on circuits supplied by rectifiers, for control of voltage selective circuits, and for protection against voltage surges. They can also be used as potentiometers with the division of voltage made independent of load current.

The resistors are composed of a silicon carbide ceramic resistance material called Thyrite (registered trademark of the General Electric Company), whose non-linear resistance characteristic is stable and substantially independent of polarity and frequency.

Units are especially suitable for electronics applications in limited space.

The expanded resistor line now includes small half-inch diameter units, with or without wire leads, having a maximum continuous rating in free air of 0.1 watt. Small one-quarter inch, rod-type units, rated from 0.25 to 1.0 watt, are available from one inch up to six inches in length. For one watt ratings, rod-type resistors capable of continuous operation at 10 kv. are available.

* * *

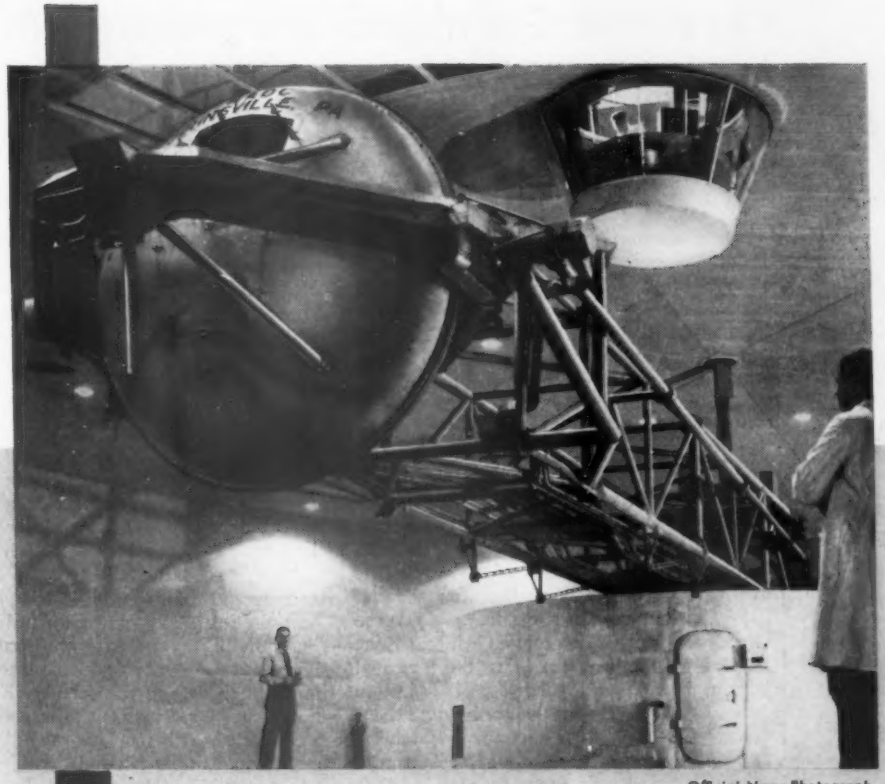
ISSUES RESEARCH REPORT ON BETTER MOTOR FUEL STORAGE

Data useful on overcoming corrosion and other difficulties in the handling and storage of motor fuels are presented in a Government research report now available to the public, the Office of Technical Services of the U. S. Department of Commerce announced.

Motor fuels (hydrocarbon fluids) when exposed to air (in storage tanks) pick up a small amount of moisture. When the fuel is cooled this moisture settles out as water droplets which cause corrosion and other troubles in fuel handling and storage. Scientists at the Naval Research Laboratory investigated how motor fuels absorb water from the air, and found that the fuel and moist air exchange water readily until an "equilibrium" water content is reached which depends on the solubility of water in the fuel and the relative humidity of the air.

A new technique for measuring small quantities of water dissolved in motor fuels, which was developed during the investigation, is also described in the report.

PB 106127, *The Exchange of Water Between Hydrophobic Liquids and Air*, 16 pages, Mimeograph $.50. Orders should be addressed to the Office of Technical Service, U. S. Department of Commerce, Washington 25, D. C., accompanied by check or money order payable to the Treasurer of the United States.





World's largest "Human Centrifuge," designed and built by McKiernan-Terry Corporation, Harrison, N. J., under direction of Special Devices Center, Office of Naval Research, Port Washington, Long Island, N. Y.

Official Navy Photograph

take a CLOSER LOOK at this

mighty arm of B&W TUBING

Recently completed at the U.S. Naval Air Development Center near Philadelphia, Pennsylvania, this odd-looking machine—the world's largest "human centrifuge"—is a notable advance in research to determine physiological effects of accelerative forces on pilots and instruments. It is capable of exerting on "human guinea pigs" up to 40 times the normal force of gravity. A man under test rides in the aluminum-plastic gondola at the end of a 50-foot arm fabricated from B&W Chrome-Moly Tubing of aircraft quality. To develop maximum gravitational pull, the total 4400-pound weight of loaded gondola and its supporting gimbal can be accelerated in a 100-foot diameter circle from a standstill to 174 miles an hour in less than seven seconds!

There could be no compromise in tubing quality and dependability for such rigorous service conditions. Selection of B&W Tubing for this unusually tough job means that you, too, should say B&W before you say *seamless* or *welded* mechanical tubing for any machining or fabricating requirement. Be sure to call on your nearest B&W Tube Representative any time you have a job for mechanical tubing for unusual or ordinary applications.

THE BABCOCK & WILCOX COMPANY
TUBULAR PRODUCTS DIVISION
General Offices & Plants
Beaver Falls, Pa.—Seamless Tubing; Welded Stainless Steel Tubing
Alliance, Ohio—Welded Carbon Steel Tubing



Sales Offices: Beaver Falls, Pa. • Boston 16, Mass. • Chicago 3, Ill. • Cleveland 14, Ohio • Denver 1, Colo. • Detroit 26, Mich. • Houston 19, Texas • Los Angeles 17, Cal. • New York 16, N. Y. • Philadelphia 2, Pa. • St. Louis 1, Mo. • San Francisco 3, Cal. • Syracuse 2, N. Y. • Toronto, Ontario • Tulsa 3, Okla.

TA-1701 M

Fitted for Every Job Need



DIPPED NEOPRENE INDUSTRIAL GLOVES

SAFE—They can help prevent costly accidents. The rough-surface fingers assure positive, easy gripping. And Neoprene withstands gasolines, oils, greases and corrosive chemicals.

COMFORTABLE—The curved finger construction conforms to the natural curve of hand—eliminates straining and pulling. Highly flexible, they permit easy, natural working motions.

ECONOMICAL—They are built for long wear and tough service. Full range of sizes, lengths and weights. U. S. technical men will be glad to analyze your glove needs and recommend the correct glove for each of your jobs. Available from your nearest United States Rubber Company Branch.

U. S. INDUSTRIAL GLOVES

UNITED STATES RUBBER COMPANY

Sawtimber Growth and Cutting Almost in Balance

Two-thirds of Lumber Production is used in Construction — Containers Head List of Manufactured Wood Products

The growth of timber in relation to the annual cut in the United States is slowly swinging toward a balance which should insure a permanent lumber industry, thanks to new methods of harvesting and manufacturing with respect for sustained-yield stability. This was brought out in an address by Frederick F. Wangaard, professor of forest products, Yale School of Forestry, at the fall meeting of the American Society of Mechanical Engineers, in Chicago.

"The total stand of sawtimber in the United States, which originally exceeded 5,000 billion board feet, is now 1,600 billion board feet. Yearly growth, computed on the basis of cubic feet to provide a common measure for the various forms of use of trees down to five inches in diameter, is estimated at 13.4 billion cubic feet. The total annual drain, in the same terms, is 13.7 billion cubic feet—a deficit of only two percent," he said. "An encouraging fact is that the current rate of replacement through growth is more than twice that estimated in 1920.

"These statistics do not show the irregularity of surpluses and deficits by regions or species, nor do they reveal the balance situation with respect to timber of sawlog size," he added. "Sawtimber growth is estimated at 35 billion board feet per year, nearly three times the 1920 growth. But total sawtimber drain, including the cut for lumber and other products, as well as losses by fire, insects, and decay, amounts to 54 billion board feet, leaving 19 billion board feet per year to be taken from capital. This represents an excess of drain over growth of 50 percent, a statement that should be examined in the light of earlier surveys of 1920 and 1933 that placed drain of sawtimber at five times the rate of growth. As more young second-growth stands grow to measurable size and as more now-growing mature timber stands and converted into young stands of second growth, the balance will continue to swing toward equilibrium between growth and drain, and the industry will have completed its transition to sustained-yield stability."

The gross value of all timber products in recent years is estimated to exceed 15 billion dollars annually, while that of the products of primary manufacture alone, such as lumber, plywood and wood pulp, is estimated at 4.2 billion dollars. A 1946 study estimated that 3,300,000 persons (six percent of the nation's paid workers) were productively employed in business directly traceable to the timber resource of the nation, he said. There are about 60,000 sawmills, 650 veneer and plywood plants, and 200 to 250 pulp mills in the United States today, and at least 92,000 manufacturing plants use wood in their product, in the process of making their product, or in making containers in which to ship their product.

"Two-thirds of current lumber production is used in construction. There are some 40 million residential structures in the United States and about one million new units are being built each year. Nearly 90 percent of these have a lumber framework, three out of four have wood exteriors, and wood is used in the great majority of homes for flooring and interior finish. Nearly 95 percent of seven million farm dwellings in the country are built of wood. The construction of new farm buildings, together with the demands for maintenance and repair of old buildings, consumes over four billion board feet of lumber each year.

"Non-residential construction including commercial and industrial buildings, schools, hospitals, churches, utilities, public buildings, and the construction of highways and bridges consume even more lumber than the farmer. Each year the Class I railroads of the country use a billion board feet of sawed crossties and bridge ties, virtually all preservative-treated for long life," he revealed along with the fact that wood is second only to steel as a structural material used in building and maintaining our nation's naval forces on shore and at sea.

Manufactured Products

"In 1948 the total amount of wood used in manufactures was 13.7 billion board feet, 89 percent of which was in the form of lumber, eight percent veneer and plywood and three percent as bolts. The remanufacture of lumber into finished products constitutes the second greatest outlet for the product of the sawmill (exceeded only by construction), and these same remanufacturing industries are also major consumers of veneer and plywood.

"Among five major uses of wood are containers, 34 per cent; millwork, 16 percent; furniture, 16 percent; flooring, eight percent and railroad car construction and repair, three percent."

A listing of a few products such as agricultural implements, shoe lasts, matches, pallets, patterns, ladders and pencils emphasizes the ways in which wood is a part of our very existence today, he said.

* * *

COMMERCIAL STANDARD, STEEL FENCE POSTS, FIELD AND LINE

Commercial Standard 184-51, Steel Fence Posts—Field and Line Type (produced from hot-rolled steel sections, which provides specifications for form, dimensions, weights, finish, and industry practices for steel fence posts of field and line type currently in general use and demand, is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., at 5c per copy.

What's YOUR problem?



Russ Jenkins (left), lubrication specialist from Standard's South Bend office, and Studebaker's Paul Izdepski work closely together to get best results from Standard's fuels and lubricants.

Wherever your plant is situated in the Midwest, there is a Standard lubrication specialist close-at-hand who will work hand-in-hand with you on lubrication problems. Right in your neighborhood, too, you'll find a Standard office and warehouse. It makes immediately available to you a reliable supply of petroleum products. Phone your local Standard office soon, and find how you can profit through Standard's unique industrial lubrication service.

STANDARD

STANDARD OIL COMPANY
(INDIANA)

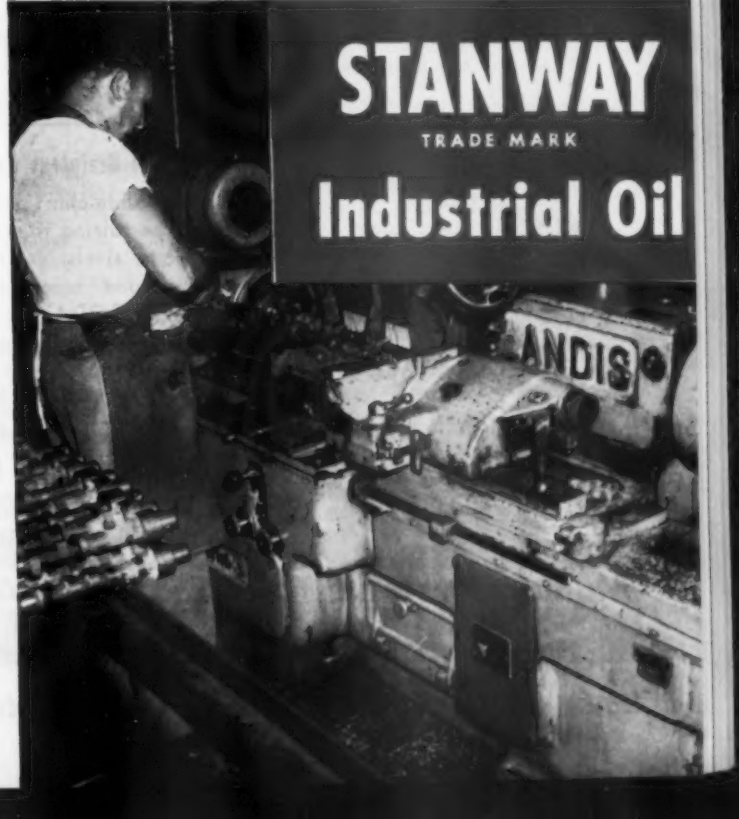
STANOBAR
TRADE MARK
Grease



STANOBAR GREASE is used throughout the Studebaker plant for lubrication of bearings in electric motors and oil pumps. Its high stability enables it to provide effective lubrication under a wide variety of operating conditions.

In Studebaker's many grinding machines, such as the one shown below, STANWAY Industrial Oil No. 30H answers a special need by serving both as a hydraulic oil and as a lubricant for ways and guides. The high stability necessary in a hydraulic oil and the oiliness needed in a way lubricant are uniquely combined in STANWAY.

STANWAY
TRADE MARK
Industrial Oil





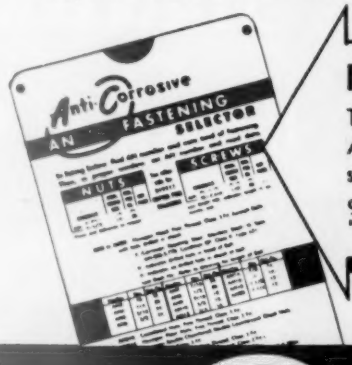
When you think of

STAINLESS STEEL FASTENINGS

think first of

ANTI-CORROSIVE

Anti-Corrosive has millions of stainless fastenings *in stock* (probably the largest selection of varieties and sizes in the world) for *immediate delivery.* Anti-Corrosive has the exceptional production capacity that can fill your requirements beyond stock items faster, *better!*



FREE—A-N Stainless Fastening Selector

This handy slide-chart instantly identifies A-N Nos. pertaining to stainless steel nuts, screws, bolts, rivets, cotter pins, washers; gives sizes and other data. Write for "Chart 52P" TODAY!

25 YEARS OF LEADERSHIP IN FASTENINGS OF STAINLESS STEEL

Anti-Corrosive Metal Products Co., Inc.

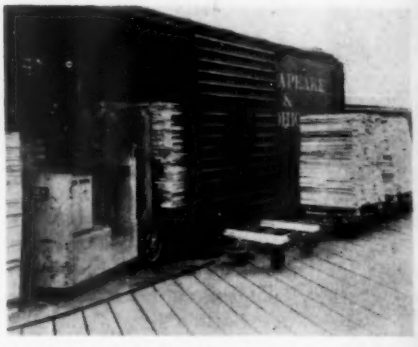
Manufacturers of STAINLESS STEEL FASTENINGS

CASTLETON ON HUDSON, NEW YORK

TRUCK-TRAILER HANDLING OF LUMBER SAVES MAN-HOURS

By specifying that its lumber be shipped from the mill in unit loads and by using modern mechanical handling equipment in and around its plant, a large mid-western manufacturer has achieved a saving of 92 man-hours in the movement of board lumber from receiving docks to storage and production areas.

Formerly, railroad cars containing approximately 24,000 board feet of lumber were unloaded manually, a few boards at a time—the boards being placed on gravity roller conveyors, carried through a basement window to a storage area, and hand piled to ceiling height.



Unit loads of dressed hardwood are removed from railroad cars by fork trucks and deposited on caster-wheel trailers

Now, the cars are loaded at the mill in unit loads of about 400 pieces, without pallets. A typical carload consists of 11 unit loads. A fork truck picks up unit loads in the freight car and puts them on the waiting trailers. Then, the trailers are hauled 500 feet to the storage area where another fork truck unloads the trailers and stacks the boards. Later, as they are needed, the unit loads are again handled by fork trucks and trailers as they are brought to the production area.

The old handling method required six men working at least nine hours to unload the freight car and to place the carload shipments of short lengths of pressed hardwood in storage. With the new method, one man now unloads the car and places the unit loads in storage in eight hours. This is a direct labor saving of 46 man-hours. A similar saving is obtained by moving the boards from storage to production areas. Thus, the total saving is 92 man-hours.

NEW ALUMINUM-PLATING PROCESS

A practical process for electro depositing aluminum at room temperature has recently been developed by D. E. Couch and Abner Brenner of the National Bureau of Standards, Washington, D. C. Dense, ductile deposits of the metal are being obtained at the Bureau from a new type of organic plating bath consisting of an ether solution of aluminum chloride and a metal hydride. The new bath is expected to find important application for electroforming articles with

(*Please turn to page* 328)

From Billets to Boilers...



From charging the specially designed revolving furnace with a steel billet (above), through the many steps of production, every Globe function is *specialized* to produce steel tubes of unvarying high quality. (At right) Globe's Physical Laboratory one of the many labs in Globe's House of Science.



GLOBE specialization assures you uniform high quality in alloy steel tubing

When you specify tubes for pressure or mechanical applications, quality determines the degree of safety and the length of trouble-free service you'll get.

For more than three decades, *specialization* in the production of uniform high quality steel tubes has key-noted all Globe research, engineering, and manufacturing operations.

It's this *specialization* that assures you dependable, uniform high quality in all Globe products.

TYPICAL ANALYSES

Carbon Moly.

1¼ Chrome ½ Moly • 1¾ Chrome ¾ Moly • 2 Chrome ½ Moly • 2¼ Chrome 1 Moly • 5 Chrome ½ Moly • 7 Chrome ½ Moly • 9 Chrome 1 Moly
A1S1 1335 • A1S1 2317 • A1S1 2512 • A1S1 4130, 4140 • A1S1 4615 • A1S1 8615, 8620, 8630, 8635, 8640 • 7% Ni. 9% Ni.

GLOBE STEEL TUBES ARE AVAILABLE IN:

Stainless Steels — Globe Seamless and Gloweld Welded • High Purity Iron — Globeiron • Corrosion Resistant Steels • Alloy Steels • Carbon Steel • High-Temperature Service Steels • Standard and Special Analysis Steels • Mechanical and Pressure Tubing

GLOBE TUBES

GLOBE STEEL TUBES CO., Milwaukee 46, Wisconsin

Chicago • Cleveland • Detroit • New York • Houston • St. Louis
Denver • San Francisco • Glendale, Cal. • Philadelphia



ROUND CALIFORNIA CHAIN CO.— an important link in the nationwide Round Chain organization — is under the direction of J. D. Cavan, a Round veteran of 15 years. Like all other Round Chain Companies, Round California supplies a *complete line* of welded and weldless chain, slings, chain hoists, electric hoists, trolleys and winches. *Sold exclusively through wholesalers and distributors.*



J. D. CAVAN



(*Continued from page 326*)

close inside tolerances, such as waveguides, and for providing various types of equipment with a thin protective coating of aluminum.

The National Bureau of Standards is now conducting extensive research in an effort to develop methods for depositing in good physical form unusual metals such as molybdenum, tungsten, titanium, and zirconium. Both fused salts and baths of organic solvents are being investigated. One of the first metals studied was aluminum. The success of the aluminum plating bath, developed in the course of this work, may be expected to give added impetus to the current widespread efforts to obtain other metals in pure form from nonaequeous solutions.

SAFETY LADDER HAS ROOMY PLATFORM



Illustration shows safety ladder made by the Dayton Safety Ladder Co., Cincinnati, Ohio, featuring roomy platform at the top which provides a generous amount of working space. The platform can be folded to form an extra step when additional height is required. Steel handrails are built on both sides of the platform. The ladders are built of airplane spruce and are equipped with rubber safety shoes. They are available in sizes ranging from 3 feet to 16 feet.

INHIBITORS REDUCE CORROSION OF INSTORAGE BALL BEARINGS

Corrosion of in-storage ball bearings having brass retainers has been investigated by the Naval Research Laboratory, ONR, and found to be galvanic in nature. Corrosion rate is accelerated by small quantities of acids formed by oxidation of petroleum or diesters, or by hydrolysis of an aliphatic diester oil, and can be greatly reduced by using corrosion inhibitors capable of neutralizing acids as they are formed. High molecular weight, tertiary mine complexes of oil soluble organic acids have been found useful. Details are available from Navy Technical News, Office of Information, Navy Department, Washington 25, D. C.



Now... Get EXACTLY the drill you need!

No longer is it necessary for you to compromise on an electric drill that's "almost" right for your job.

The three PET Superduty Drills you see above are typical examples of a complete line of 54 industrial drill models—*each with separate and distinct operating ranges.*

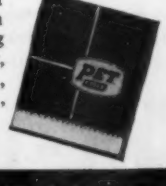
Complicated? Not a bit! It simply widens your choice . . . gives you a chance to select the PET drill with the *exact* characteristics you need in maintenance or on your production line. Naturally that means more efficient work and longer drill life.

As for quality, there isn't a finer drill made! Every PET drill is built for rugged, *continuous* duty. Features such as dynamically balanced armatures, precision-cut gears and ample reserve power are *standard;* not "optionals" that build up the cost. Control of every manufacturing step, including production of our own motors and die castings, assures uniformly high quality of every PET product.

And, *the price is lower than you think.* If you want the best in electric drills . . . a selection that's wide enough to give you exactly the drill you need . . . get the facts on PET Superduty Drills!

Write for this FREE catalog

It's packed with information and specifications on PET drills, bench and hand grinders, sprayers, accessories. Here's a catalog you'll want to study from cover to cover! Write for Catalog and name of nearest distributor, to Portable Electric Tools, Inc., Dept. P-102, 320 West 83rd St., Chicago 20, Illinois.



The features you want are the features you get—in PET Superduty Drills

- **Reserve Power; for the extra-tough job**
- **Heavy-Duty ball and needle bearings**
- **Precision-Cut, Heat-Treated Gears; for smooth, quiet power flow**
- **Dynamically Balanced Armatures; for freedom from vibration**
- **Forced Ventilation; for cool running**
- **Aluminum Alloy Die Castings; for light weight, easy handling**
- **Compact Design; makes hard-to-reach drilling jobs easier and faster**
- **Meet U. S. Government and Military Specifications**

PET POWER TOOLS

PORTABLE ELECTRIC TOOLS, INC.

320 West 83rd Street, Chicago 20, Illinois

In Canada: Portable Electric Tools, Ltd., Toronto, Ontario



with STAR-KIMBLE BRAKEMOTORS

Where start-and-stop cycles are toughest, you'll find Star Brakemotors on the job, hour after hour, day after day!

The extra-large braking area of Star-Kimble Brakemotors assures quick *stopping*, positive *holding* of the load—gives long service life with little maintenance. Small air gap between electromagnets and brake disc results in extremely fast *release*—allows motor to start smoothly, without friction drag. *Other features:*

Brake discs mounted close to motor for low wear and strain on shaft and bearings. Magnets mounted away from motor for cool operation. Quick, simple adjustment of braking torque. Automatic re-set hand release—an exclusive, patented Star-Kimble feature.

Remember . . . a Star-Kimble Brakemotor is a compact, integral unit—motor and brake *built* together to *work* together. Each Star-Kimble Brakemotor is designed for specific service requirements—by the company that pioneered disc brakemotors and has applied them successfully, for more than 25 years.



Want to know how Star-Kimble Brakemotors work—what torque and motor ratings are available? Write for free Bulletin B-501-A.

STAR-KIMBLE

MOTOR DIVISION OF
KIMBLE PRINTING PRESS & MANUFACTURING CO.
213 Bloomfield Avenue Bloomfield, New Jersey

REPORT IMPROVED INSULATION WITH ALKYD PLASTICS

The new commercially available thermoset alkyd plastics now provide insulation resistance that compares favorably with that provided by well-known and commercially accepted phenolic and melamine plastics, Dr. Maurice H. Bigelow, Technical Director for Plaskon Division of the Libbey-Owens-Ford Glass Company, reported recently in an address before the Electrochemical Society in Philadelphia.

This has been accomplished by controlling the effect humidity has upon the insulation resistance of the alkyd molding compounds, Dr. Bigelow said.

There are now five different types of alkyd Plaskon molding materials including two fiber glass-alkyd materials. They have been used successfully in all kinds of industrial plugs and receptacles, in capacitors, condensers, connectors, terminal blocks, and other automotive and aviation equipment such as coil tops, distributor caps and rotors, magnetos and spark plug insulators.

FORKLESS FORK TRUCK CUTS HANDLING COSTS



A forkless fork truck, bright handling idea of engineers at the Maytag Company's Newton, Iowa plant, allows Maytag to stack its cartoned washers without skids and haul them two-at-a-time from storage to shipping areas in about one-third of the time these hauls formerly took.

Attached to the frame of Maytag's novel truck (it started out as a standard Baker 1500-lb. capacity model) is a metal lip which hooks under flaps at the top of the cartons to lift them. A back plate prevents damage to the cartons.

Using this lip device, Maytag truck operators load a 40 ft. boxcar with 78 cartons in 48 minutes. And the lip makes it possible to use less expensive cartons, without spacer strips, since space for fork entry is no longer necessary.

• aluminum extrusions



buy from the BIG NAME in the BUSINESS

Here's one of the pioneers in the aluminum extrusion business. You can order from us with confidence. Let us know what aluminum shapes you need, in what quantity and when. We will advise you promptly on price and a dependable delivery schedule.

Address your inquiry to Extrusion Sales, Youngstown Manufacturing, Inc., 66-76 S. Prospect Street, Youngstown 6, Ohio.

YOUNGSTOWN MANUFACTURING, INC.
66-76 South Prospect Street
Youngstown 6, Ohio

SUPERIOR ALUMINUM EXTRUSIONS

5 VALUABLE CATALOGS FOR YOUR FILES...



. . . describing Harrisburg Seamless Steel High-Pressure Cylinders.



. . . describing Harrisburg Seamless Steel Pipe Couplings.



. . . describing Harrisburg Drop-Forged Steel Pipe Flanges.



. . . describing Harrisburg Lite-Weight Liquefied Petroleum Gas Cylinders.



. . . describing Harrisburg Drop Forgings.

Copies of any or all of the above Catalogs will be mailed on request . . . order them by product name.

99 Years in Pennsylvania's Capital

Harrisburg Steel CORPORATION HARRISBURG 19, PENNSYLVANIA

DTA Helps Speed Ore to Steel Mills

New Ore Carriers Added to Great Lakes Fleet. Rail Shipments of Ore to Loading Docks Show Big Increase.

"In the short time which has passed since the end of the Nation's most disastrous steel strike, railroads and lake vessels have made a significant dent in the millions of tons of iron ore which could not be moved during the period of work stoppage."

This statement was made recently by James K. Knudson, Administrator of the Defense Transportation Administration, who added: "DTA recognizes the importance of keeping ore moving at this critical stage of the defense buildup. Actual defense production is just now getting into high gear and any lack of iron ore would again bog down industry and magnify the damage already done."

Great Lakes Movement

The Administrator went on to say that two carriers, each of 19,000 tons capacity had been added to the Great Lakes fleet, bringing the total strength to 278 vessels, and that all time high records are being broken in an effort to achieve maximum tonnage during the remainder of the navigable weather.

Shipments from the upper lakes regions —including some Canadian ores—attained the highest figure in history during the week ending Sept. 1, when 3.3 million gross tons were moved. The previous weekly high was 3.2 million tons during the week of August 18. Shipments during August also set an all time record of 14.3 million gross tons.

The normal shipping season on the Great Lakes lasts about eight months, from April to an indeterminable date between November 15 and December 1. However, a stretchout of favorable sailing weather—and this has happened several times in recent years—could materially aid the mills to further close the gap on the lost tonnage.

The latest cumulative figures on lake ore, including the week ending September 1, totaled 37.7 million gross tons, compared to 58.8 million tons shipped in the corresponding period last year. Since July 28 of this year, after the strike ended, through last week, 15.8 million tons of ore have been moved, by lake vessels, compared to 14.9 million tons in the same period of last year—a gain of nearly a million tons.

"Although we shall not reach our original target goal—the movement of 96 million tons of iron ore down the lakes this year—DTA still hopes to see 76 million tons cross those waters before the freeze sets in," Mr. Knudson said.

All-Rail Ore Movement

Railroads are playing a highly essential role in the Great Lakes movement by hauling ore between mines and loading docks from where it is shipped to lower lake ports and again by rail to inland consuming points.

Last July a meeting was held between officials of the DTA, Association of American Railroads and the steel industry, and a plan for the movement of ore from the mines to the mills was worked out which could be carried on, not only while the lakes remained navigable, but afterwards as well.

As an indication of what can be done, DTA points out that car loadings in the Lake Superior region which numbered only 1,749 in the week ending July 26, jumped to 52,824 the week after the steel strike ended. This includes both rail and vessel movements, and the figure is slightly higher than that recorded before the strike started. Also, in the week which ended Saturday, August 9, the iron ore loadings in Northern ranges had climbed to 60,000 cars—more than has been loaded in any single week in ten years.

The railroads are striving to reach a minimum of 450 cars a day for this emergency movement and rail officials believe the number will be increased to exceed 600 cars every 24 hours for a portion of the season. The record to date is 564 cars loaded and moved out on August 27.

"We expect a minimum of 4 million tons to be moved by rail from mines to mills before navigation ends this year," declared Mr. Knudson. "Officials of DTA and the Interstate Commerce Commission are closely watching this all-rail movement," he added, "and are standing by to advise and assist in any way they can to keep the ore cars rolling."

DTA presented further evidence of what railroads can do by citing the record 1.1 million tons of ore moved in the winter months of January, February and March 1951. Soon after the outbreak of war in Korea, he recalled, there was a steep rise in the demand for steel and for the first time in their history, the railroads undertook the bulk movement of iron ore in cold weather. In these months, the mills received all the ore they could unload. In fact, railroad officials have advised DTA that the ability to move ore throughout the winter is limited only by the ability to produce and unload it.

Import Ore Movement

There is a growing need for imported ore which is being matched by steady expansion in the number of deep-sea carriers, DTA advises, and although these ships are not yet moving tonnages comparable to Great Lakes vessels and railroads, they are nevertheless making a substantial contribution to steel mill stockpiles.

Included in the ocean-going fleet are ten vessels which regularly bring ore from Venezuela and Chile; two hauling from Liberia; and others under construction to transport Quebec-Labrador ore out of the port of Seven Islands.

Actually from January to May of this year, some 3.7 million net tons of foreign iron ore were moved through the Nation's ports and through 12 widely separated customs districts. In all, 14 different countries shipped ore to U. S. mills.

(*Please turn to page* 336)

pressure...

...in ounces

...or tons





THERE is no better picture of the scope of Marsh Gauges than the two extremes represented by these two instruments—one indicating whispers of pressure; the other, tons.

In construction these two gauges are poles apart; but in performance they are exactly alike: Both are designed and built, as only Marsh can make them, to do their job right year after year.

This kind of performance is common to all members of the big Marsh family of gauges running into hundreds of pressure ranges, types, styles and functions. Select the *proper* Marsh gauge for your condition and you have chosen the *best.*

MARSH INSTRUMENT COMPANY

Sales affiliate of
JAS. P. MARSH CORPORATION, DEPT. G, SKOKIE, ILL.
Export Dept.: 155 E. 44th St., New York

Ask for catalog covering Marsh products which include: A full line and range of gauges in pressure, compound, altitude, hydraulic, sprinkler, ammonia, ounce-graduated retard, test, and diaphragm types. Dial thermometers in rigid stem and remote reading types. A broad line of steam heating and refrigeration specialties including the Electrimatic line of refrigeration water regulators and solenoid valves.



Marsh "MASTERGAUGE" the aristocrat of pressure gauges

MARSH GAUGES

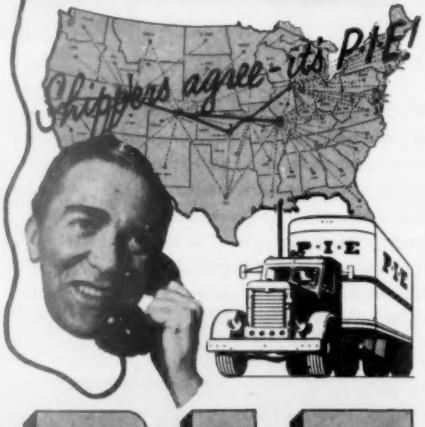
THE STANDARD OF ACCURACY

sure that shipment will arrive on time, Ted – we always

SPECIFY P·I·E



Modern Motor Freight minimizes all your problems—assures safe, dependable delivery—"door-to-door." Whether you are on our cross-country line between California and the Midwest, or reached through off-line connecting carriers, your supplier knows you're on the beam when you "Specify P·I·E"!



P·I·E
PACIFIC INTERMOUNTAIN EXPRESS

Chicago · St. Louis · Kansas City · Wichita
Denver · Ogden · Elko · Reno · Ely · Pocatello
Salt Lake City · San Francisco · Los Angeles
Sacramento · Oakland · Stockton
Sales Offices: Washington, D. C.
GENERAL OFFICES: 299 ADELINE STREET
OAKLAND 20, CALIFORNIA

New Tools For Determining Drawing Quality of Cold-Reduced Sheet and Strip Steel

Provide Accurate Measure of Steel That Can Be Drawn Satisfactorily and Steel That Might Not Take Draw

Illustrations show the Flex-Tester, which by measuring resistance to bending gives an accurate measure of the drawing quality of cold-reduced sheet and strip steel; and a spherometer adapted to measure the diameter of the bend in the sheet, which was found to give an accurate determination of a material's susceptibility to stretcher strain during the draw. The instruments, which have been tried and proved in certain stamping plants in the auto industry, were developed by the Metallurgical Research Division of the Jones & Laughlin Steel Corporation.



The Flex Test reading is below 50 on the gage, indicating that the steel will successfully take the draw it is destined for.

To use the Flex-Tester, the operator bends back a corner of the steel sheet and the resistance to the bend is measured on a dial on the instrument. After a large number of tests it was determined that for severe draws, 60 on the gage is an approximate dividing line between steel that can be drawn satisfactorily and steel that might not take the draw. This is a measure of ductility, translated into the probability of the breaking of the steel during the draw. The lower the resistance to the flexing force, the better the drawability of the steel, and vice versa.

After the Flex-Tester reading, a spherometer is used to measure the diameter of the bend. The smaller the diameter, the greater the tendence to stretcher strain — the appearance of "worms" or "orange peels" on the surface—during the draw. Such sheets would not be acceptable for use on exposed panels where a smooth enamel surface is desired, but can be used for unexposed parts where surface is not a prime requisite.

If the spherometer shows a large bend diameter—approximately 3" or greater, there will be no tendency to stretcher strain, and the degree of stretcher strain will be inversely proportional to the decrease of the bend diameter. This knowledge can eliminate unnecessary roller-leveling to relieve strains, or it can indicate when roller-leveling is necessary.

The entire test takes less than a minute. Since specimen preparation or coupon cutting are not required, the test is non-destructive. The instruments are light and easy to handle, allowing quick simple tests at any location eliminating the necessity of taking samples to a laboratory. Further, the method gives a material test which can be supported by an actual performance result of the test piece, and die setters will find use for the Flex-Test in quick determination of the quality of the materials they are using in spotting dies.



The spherometer is used to measure the diameter of bend made with Flex-Tester. The smaller the diameter the greater the tendency to stretcher strain during draw.

◆ ◆ ◆

SPEED ORE TO STEEL MILLS

(*Continued from page* 334)

Administrator Knudson tempered his optimistic outlook for the remainder of the 1952 season with a word of caution.

Weather Factor

"No transportation system," he declared, "even one as vast and efficient as ours can be expected to make up all of the tonnage lost by the steel strike in so short a time. Any final total must be hinged on that ever-present imponderable, the weather. If the ice stays off the lakes until December, the Nation can be grateful, for then our stockpiles, augmented through the winter months by regular rail shipments, and by shipments of imported ore, may be sufficient to keep the mills in continuous operation."

Clip coupon now... to get your copy... describing...

America's most beautiful Coolers!

Temprite

DRINKING WATER COOLERS



1. Tells how to accurately determine the number and type of coolers needed for any installation. Room temperatures, type of work and all other factors are considered.

2. No less than 9 basic models to choose from, including the amazing new *low cost remote type cooler*. A model for every need.

A MODEL FOR EVERY NEED

Since 1929
Temprite
PRODUCTS CORPORATION
BIRMINGHAM, MICHIGAN



TEMPRITE PRODUCTS CORP.
P.O. Box 72-L, East Maple Rd.
Birmingham, Michigan

☐ Send me your complete line brochure
☐ Tell me where I can purchase Temprite Coolers

Name_____

Address_____ Zone_____

City_____ State_____



*Well-Cast

COMMERCIAL LIGHTWEIGHT CASTINGS

Your commercial requirements for lightweight castings in aluminum or magnesium may be tough, but we'd welcome an opportunity to look them over. We've tackled a good many diversified casting problems over almost a half century.

Our four completely equipped plants and their trained personnel are at your disposal.



*Well-Cast

MILITARY LIGHTWEIGHT CASTINGS

Aircraft wheels, strut parts, engine parts and miscellaneous components are being made every day at our plants, in aluminum and magnesium. X-Ray inspection, close attention to detail, complete facilities for production in sand, semi-permanent and permanent mold form.

Well-Made Wood and Metal Patterns.
Well-Cast Ampco Bronze Castings.

*Copyrighted Trade Name.

If you would like to receive the Wellman Magazine each month without charge, drop us a note on your business letterhead.

THE WELLMAN BRONZE & ALUMINUM CO.

DEPT.17, 12800 SHAKER BLVD., CLEVELAND 20, OHIO

TEXACO DEVELOPS NEW DUAL-PURPOSE PRESERVATIVE OIL

The internal combustion engine which is temporarily taken out of service for purposes of storage or shipment presents a special problem. It must be properly lubricated for service preceding or following the stand-by period, and it must be protected against rust and the acidic products of combustion while it is not being used. In the past it has been necessary to accommodate these separate needs with separate products. The lubricant was drained from the engine and a preservative put in, and vice versa, depending, of course, upon whether the engine was going in or out of service.

Extensive research covering all aspects of this problem has resulted in the development of a new dual-purpose product by the Port Neches, Texas, Laboratories of The Texas Company. Produced in two grades, Texaco Preservative Oil 10, and 30, functions both as a lubricant and as a preservative. It eliminates the need for handling two products successively. The time which is saved is a critical consideration in the instance of military vehicles being shipped to an area where they may have to "come out fighting".

Texaco research experts carried out long-range investigations into such factors as humidity, condensation, corrosion, and related phenomena. The resultant product combines special additives developed to ensure maximum preservation of internal engine surfaces with motor oil additives of the type used in heavy duty lubricants. Texaco Preservative Oil 10, and 30, incorporate characteristics which in some instances exceed by fivefold the requirements of military specifications. For example, one test requires that steel panels, which have been dipped in preservative oil, should remain free of corrosion after 200 hours' exposure in a humidity cabinet at 100 degrees (F.) and 95-100 per cent relative humidity. The new Texaco formulation gave protection for more than 1,000 hours.

In addition to its application in the engines of vehicles scheduled for storage or shipment, the new lubricant-preservative has proved useful in other internal combustion engines in intermittent service. Examples of the latter are stationary engines and engines in farm vehicles. Texaco Preservative Oil 10, and 30, when functioning as a lubricant need not be changed until the engine has reached the normal drain-and-refill point. It is compatible with qualified heavy-duty motor oils.

ECONOMICS OF MACHINERY REPLACEMENT

"The Economics and Problems of Machinery Replacement" is the title of a recent address before the Society for the Advancement of Management by Geoffrey G. Beard, executive vice president of United Engineering & Foundry Co., Pittsburgh, which is available in booklet form from the Machinery & Allied Products Institute, 1236 20th Street, N. W., Washington 6, D. C.









Whatever your fuel picture,

there's a B&O coal to fit it!

• In the Baltimore & Ohio area lies a treasure-land of Bituminous—an almost inexhaustible source of low-cost heat and energy. Here are found Bituminous coals *of all varieties*—for power, for coking, for steam, for space heating.

B&O coals are excellent for generating steam in utility and industrial power plants, for steel mills, malleable iron plants, gas plants, lime and brick kilns, cement and glass plants, and potteries.

Whatever your "burning need," Industrial or Domestic, there's a B&O coal to meet it—and we are ready to help you find the best for your purpose. Just *ask our man!*



BITUMINOUS COALS
FOR EVERY PURPOSE



LINKING 13 GREAT STATES WITH THE NATION ®

BALTIMORE & OHIO RAILROAD

Constantly *doing things*—better!

U. S. TOBACCO COMPANY INSTALLS RANDOLPH AUTOMATIC FIRE SYSTEM

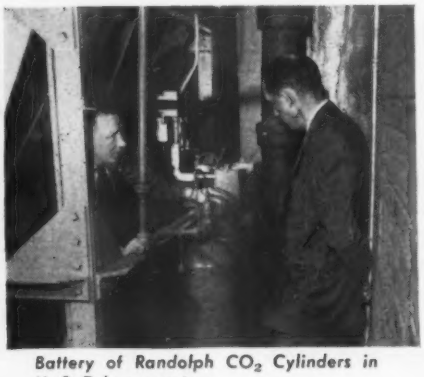
The U. S. Tobacco Company's large multiple unit dust collector presented an unusual and worrisome fire hazard, but this 150 pound Randolph Automatic System not only automatically detects and extinguishes any fire that might occur in the unit, but also shuts down the dust collector blower, and rings an alarm located on one of the lower floors of the building.



Officials of the U. S. Tobacco Co., and the Nashville Fire Department inspect the Randolph Automatic System installed on giant dust collector.

Kills Fire, Sounds Alarm and Shuts Down Machinery

As in the U. S. Tobacco installation, Randolph Systems, in addition to automatically killing the toughest fires in split seconds, can also be equipped with duct and door closers, motor, fan and machinery shut-offs, warning alarms and other auxiliary safety devices. Systems are designed for both local application or total room flooding and are ideal for dip tanks, baking ovens, spray booths and hundreds of other applications.



Battery of Randolph CO_2 Cylinders in U. S. Tobacco system.

Free Catalog and Engineering Service Available Without Cost

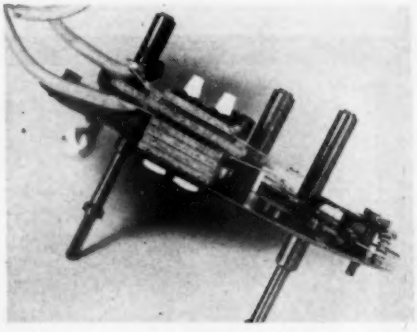
Randolph's FIRE HAZARD INDEX gives correct equipment and methods for protection against 590 typical fire hazards. Write for your free copy today. Address: Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Ill.



NYLON ROD NOW USED FOR ELECTRIC SWITCH RIVETS

A sleep switch assembly fastened with nylon rivets is now being used by a leading clock manufacturer to provide longer life and greater assembly security than with materials previously used.

The rivets are solid round head rivets, each about ¾" long, cut on automatic screw machines from 3/16" diameter nylon rod provided by The Polymer Corporation of Pennsylvania, Reading, Pa. The switch contacts are supported between small laminated phenolic stamped wafers, and the whole assembly is held together by two nylon rivets, fastened by Tinnerman nuts.



White nylon switch rivets in clock assembly.

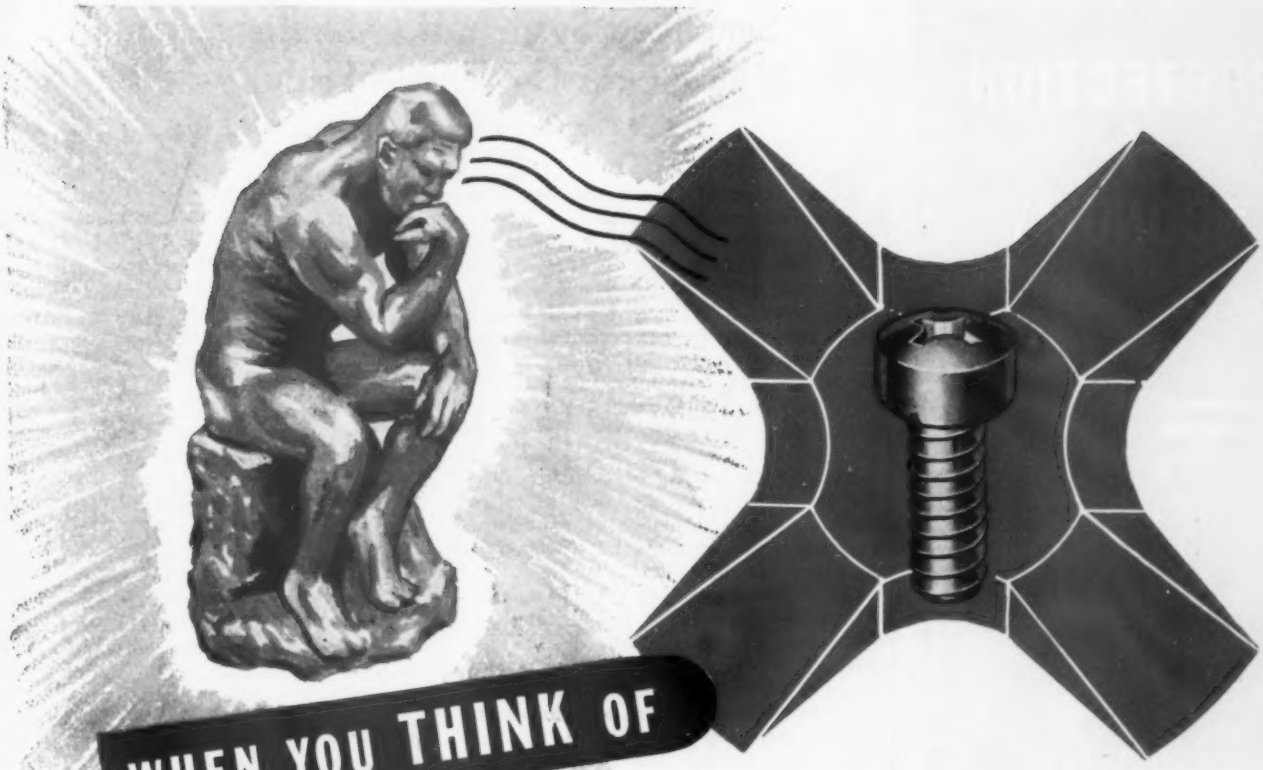
A feature of this method of fastening is that the nuts are driven, instead of spun onto the nylon rivets. When driven on, the resiliency of the nylon provides ideal "spring back" after compression, thus holding the nuts firmly.

The application has received Underwriter's Laboratory approval for 110 volt AC current.

READY-MIXED ALUMINUM PAINT BONDS TO METAL SURFACES

"Super-Hot" is a new ready-mixed aluminum paint that, when applied to practically any metal surface, becomes permanently bonded to the surface upon subjecting the painted metal to heat from 500 to 1600 degrees Fahrenheit, according to the Sheffield Bronze Paint Corp., Cleveland, Ohio. Originally developed to protect and decorate metal surfaces where extreme heat is required, Sheffield "Super-Hot" will add a protective and decorative finish to furnaces, pipes, boilers, ovens and other metal surfaces withstanding 1600 degrees of heat, it is claimed. The greater the heat, the more permanent the bond, because the paint alloys itself to the metal surface with the application of heat. The company states that it maintains its brilliance and will not crack, chip or peel.

It is also stated that the thermo-coupling action incident to the application of heat in excess of 800 degrees to a metal object painted with "Super-Hot" makes the painted object impervious to most ordinary solvents. The new paint is described as a heat-resistant, anti-corrosive, weather resistant protective coating for practically all metal surfaces. It may be brushed, sprayed or dipped and air dried within thirty minutes after which time heat can be applied.



WHEN YOU THINK OF

PHILLIPS

Think of CENTRAL

ALL HEADS STYLES • ALL METALS



RESEARCH—Central's "perfect impression" of the famous Phillips recess is the result of many years of independent research in recessed head design and testing.



KNOW-HOW—Central's "perfect impression" of Phillips recessed heads, produced burr-free to hairline tolerances on high-speed machines, guarantees superior performance.



QUALITY—Top grade ferrous and non-ferrous materials hold the perfect burr-free impression. Central's deep recess adheres independently to the driver tip for easy-one-hand driving. Use all types of manual or power drivers with Central Phillips recessed head screws for quick, positive engagement and fast, wobble-proof driving to insure mar-proof assemblies.



"You Can Depend on Central"

CENTRAL SCREW COMPANY

3501 SHIELDS AVE., CHICAGO 9, ILLINOIS

3028 E. ELEVENTH ST., LOS ANGELES, 23 CALIF. • 149 EMERALD ST., KEENE, N. H.



Protective Clothing by *Sawyer*

100% Waterproof — made with top quality base fabric *saturation-coated* first and then coated with 6 coats of Neoprene Latex.*

Rotproof — not affected by oils or chemicals, *positively will not blister, crack or peel.*

Tough as mule-hide — wears like iron, takes endless snagging, scraping, rubbing and still gives full protection.

Also: Three-quarter and long coats, aprons, coveralls and many other styles. All clothing made in black or yellow.

**Sawyer fabrics are coated by The Brunsene Company, a division of*

THE H.M. SAWYER & SON CO.

FROG BRAND

CAMBRIDGE MASSACHUSETTS

Simplified System of Cylindrical Core Boxes Developed by NBS

Set of Fourteen Boxes Eliminated Need for Special Boxes

Many types of foundry castings contain cylindrical holes, and it is usually more economical to form the hole at the time the casting is made than to drill it afterward. To form such a hole, a cylindrical core is properly located in the mold before the casting is poured. These cores consist largely of sand, and are easily knocked out after the castings have cooled. Hollow boxes of suitable dimensions are used to form the necessary cores. Many different cores are required for the variety of castings called for in foundry practice, and a correspondingly large number of cylindrical core boxes are acquired and accumulated by many foundries.

At the National Bureau of Standards a simplified system of cylindrical core boxes has recently been devised by Richard H. Harwell and J. H. Schaum. A set of fourteen boxes for cores ranging in diameter from ⅜ inch to 2 inches in ⅛-inch steps, has been made for the NBS experimental foundry. There is one box for each diameter core, and the length of each box has been fixed at the maximum likely to be required for a core of that diameter as shown by experience. Shorter cores can be cut from full-length units, or can be made by placing cylindrical pieces of wood of the proper length in the core-box cavity. When a core with a tapered end is required, a brass insert having a standardized taper is placed in the core box.

The NBS core boxes are filled and rammed with conventional sand-and-binder mixtures. A typical mixture contains, in addition to washed silica sand, about 1½ percent of linseed oil, ½ percent of corn flour, and 3½ percent of moisture. After the sand has been formed in the core box, it is carefully removed and baked for an hour or more at about 400°F to harden it, in accordance with usual practice.

Though the boxes were made of wood at NBS, metal might well prove more satisfactory in production work. Brass was used for the tapered inserts. Each insert is 1/32 inch smaller in diameter than the core box with which it is used, to facilitate placing it at the bottom of the box prior to ramming the sand. Tapers were standardized at 15°, instead of the wide variety of tapers encountered in common practice. A standard vertical length for the tapered insert was also adopted for each core diameter.

When cores are used in making castings, the ends of the cores must fit properly into the two halves of the mold. The mold is therefore formed with wooden "core prints" attached to the casting pattern. These core prints are solid blocks of the same size and shape as the ends of the cores. When the pattern and prints are removed after the mold has been formed around them, the mold is left with holes of proper diameter, depth, and taper to accept the ends of the cores. Because taper and length of the core ends are standardized in the NBS system, it becomes possible to use a master set of core prints, which further simplifies foundry operation.

The 14 versatile NBS core boxes take care of the great majority of core requirements at the NBS experimental foundry, largely eliminating the need for making special boxes for new jobs. Foundry operation is thus simplified and made more economical. Because of its inherent advantages, other foundries may find the NBS system useful, with or without modification.

Reactor-Produced Polonium Now Available for Purchase

Reactor-produced radioactive polonium-210 may now be purchased at Oak Ridge, Tenn., for research activities, according to announcement by the Isotopes Division of the Atomic Energy Commission on the eve of the sixth anniversary of the nation's isotope distribution program.

Polonium is the first reactor-produced radioisotope to be sold which emits alpha particles. It can be used also as a source of high energy neutrons.

Also marking the anniversary of the isotope program, Oak Ridge National Laboratory, the world's principal isotope production center, reported that more than 35,000 shipments have been made since August 2, 1946, to users in 46 states and 33 foreign countries. Several thousand additional shipments were made from other sources, such as Brookhaven National Laboratory, Argonne National Laboratory and commercial processing concerns.

The Isotopes Division, a part of the AEC's Oak Ridge Operations, and the U. S. licensing agency for purchases of significant quantities of radioactive materials, said the newly available polonium is needed by research groups for physical and biological investigations. It may be used also in oil well logging and for ionization sources.

In addition, the element could be used in luminous phosphors, static elimination devices, and for other industrial purposes. However, it is not available at present in the quantities required for such uses.

Polonium can be bought at Oak Ridge National Laboratory in two forms. When it is to be used as a neutron source, the polonium will be mixed with beryl-

(*Please turn to page* 348)



EVERY PART *Pre-tested* For EXTRA SERVICE

Pins, bushings, rollers, side plates . . . as raw material, after fabrication, during heat treating and before and after assembly are all "pre-tested" by Atlas. Every part or piece of metal that goes into a length of Atlas Chain is carefully "pre-tested" with the latest scientific equipment . . . tested and torture-tested again and again to assure extra service life.

This sturdy "pre-tested" longer life built into every length of Atlas Roller Chain means rugged toughness on every installation . . . with velvet smooth operation. That is why Atlas Roller Chain has won the name of the "super-life" roller chain. On drilling rigs, conveyors, large and small power drives and wherever roller chain is used Atlas Chain has won the reputation of more service with less servicing.

For maximum performance that has been "pre-tested" during manufacturing and performance-proved from coast to coast, install Atlas Roller Chain. Available through leading distributors throughout the nation. Write today for new Atlas handbook and catalog on roller chain. Atlas Chain & Manufacturing Co., Philadelphia 24, Pennsylvania.

ATLAS ROLLER CHAIN

ATLAS



from shipper to shopper . . .





For everything from bath towels to baseball bats . . . from one end of the country to the other . . . hundreds of prominent manufacturers look to the Stanley Steel Strapping System for the safe, economical protection of products in transit.

With Stanley Steel Strapping, your products are better protected against rough treatment, damage or pilferage en route. Your bales, boxes, cases and cartons are neater . . . tighter. Your packaging and shipping departments can do a better job. You reduce man-hours . . . lower costs. You save time, money, and materials in the shipment of almost any product, when you combine the Stanley Steel Strapping System with other modern shipping methods. The complete System includes strapping, seals, tools, reels and accessories—*everything* for your application! Why not try it? Mail the coupon today.

Invite the Stanley Man to call

Branch Offices or Representatives in 32 Principal Cities
Steel Strapping and Car Banding Systems

STANLEY
Reg. U.S. Pat. Off.

The Stanley Works, Steel Strapping Division
211 Lake Street, New Britain, Connecticut

Please ask your representative to call and explain the advantages of the Stanley Steel Strapping System to me.

Name.....

Firm Name.....

Street.....

City.....State.....

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

(*Continued from page* 346)

lium and enclosed in a cylinder of nickel, about 3/4-inch in diameter. As an alpha source, the polonium will be plated on a strip of platinum.

Polonium-210 produced in a reactor by neutron bombardment of bismuth is of higher purity than polonium derived from the radioactive decay of radium.

Operated for the AEC by Carbide and Carbon Chemicals Co., a division of Union Carbide and Carbon Corp., Oak Ridge National Laboratory is the site of pile, in which most commercially avail- the X-10 graphite-uranium reactor, or pile, in which most commercially available radioactive isotopes are produced. ORNL also produces and ships stable isotopes to licensed purchasers.

The demand for isotopes, distributed under a pricing system intended to cover production costs, has risen at a steady rate each year. No indication of leveling off is apparent in year-to-year figures on shipments. Shipments for fiscal year 1952 totaled some 9,000—about 25 per cent of shipments in the entire six years of the program.

The medical field, using isotopes in research and therapy, has taken some 13,000 shipments in six years, more than twice the number received by isotope users in the field of animal physiology, the second greatest field of isotope usage.

Next, in order of number of shipments: physics and chemistry, general research and development, industrial research, plant physiology, and miscellaneous, including commercial processors who resell the materials they buy.

The single largest selling isotope is iodine-131, with more than 10,000 shipments in six years, followed by phosphorus-32, with about 8,000 shipments.

In terms of radioactivity shipped, radioactive cobalt-60 has led the field with approximately 2,200 curies (a curie is an amount of radioactive material which disintegrates at the rate of 37 billion atoms per second). Iodine-131 followed with about 1,200 curies.

✓ ✓ ✓

INSURANCE SEMINARS SCHEDULED BY AMERICAN MGMT. ASSN.

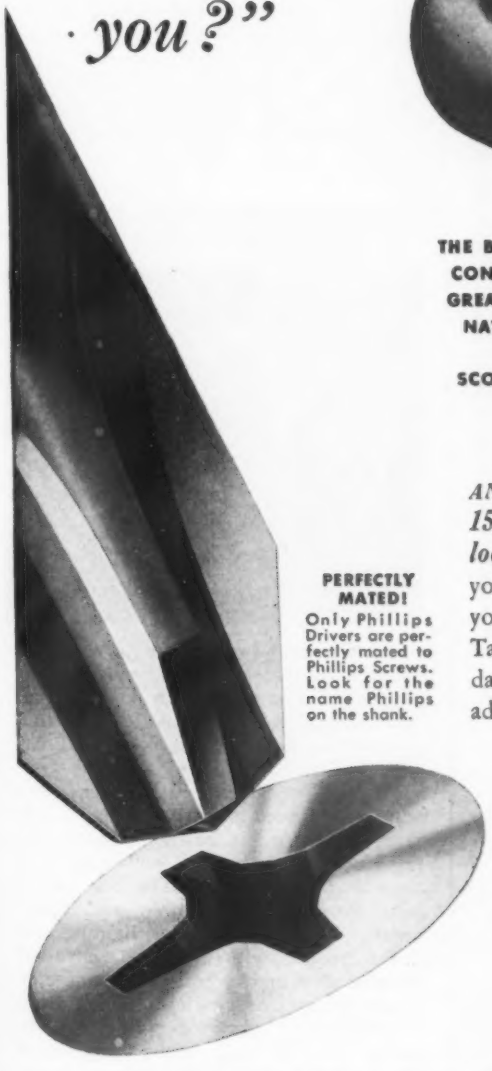
The Insurance Division of the American Management Association, 330 West 42nd Street, New York, N. Y., will conduct a series of ten workshop seminars, five of which are to be held in Chicago, October 8-10, and five in New York, January 21-23. Each seminar is a discussion group of not more than 15 executives under the guidance of one or more discussion leaders.

Among the principal subjects to be discussed at the insurance seminars are effective use of business interruption insurance; problems of handling company losses and customer claims; increasing insurance department efficiency; analysis of insurable hazards in business operations; modern insurance buying; planning and preparing insurance records and reports; insurance aspects of the employee benefit program; proper application of excess, deductible and self insurance.

"What clue to quality can they offer you?"



AMERICAN SCREW COMPANY • ATLANTIC SCREW WORKS, INC.
THE BLAKE & JOHNSON CO. • CAMCAR SCREW & MFG. CORP. • CENTRAL SCREW CO.
CONTINENTAL SCREW CO. • THE EAGLE LOCK CO. • ELCO TOOL AND SCREW CORP.
GREAT LAKES SCREW CORP. • THE H. M. HARPER CO. • THE LAMSON & SESSIONS CO.
NATIONAL LOCK CO. • THE NATIONAL SCREW & MFG. CO. • PARKER-KALON CORP.
PHEOLL MANUFACTURING CO. • ROCKFORD SCREW PRODUCTS CO.
SCOVILL MANUFACTURING CO. • SHAKEPROOF, INC. • SOUTHERN SCREW COMPANY
THE SOUTHINGTON HDWE. MFG. CO. • STERLING BOLT CO.
STRONGHOLD SCREW PRODUCTS, INC. • WALES-BEECH CORP.



PERFECTLY MATED! Only Phillips Drivers are perfectly mated to Phillips Screws. Look for the name Phillips on the shank.

ANSWER: Phillips Cross-Recessed-Head Screws—a clue that more than 15 million readers of The SATURDAY EVENING POST are being told to look for. When you assemble your product with these famous fasteners, you give it an *extra* mark of quality that registers on sight! Remember, too, you save time, work, and money when you use Phillips Wood, Machine, Tapping Screws or "Sems". They start faster, do away with driver skids, damaged parts, split screw heads. They set up tighter, resist vibration . . . and add structural strength. Include Phillips Screws in your specifications.

X *marks the spot . . . the mark of extra quality*

PHILLIPS *Cross-Recessed-Head* **SCREWS**

As Advertised in The Saturday Evening POST



THE FASTENERS OF TODAY . . . AND OF THE FUTURE



RCA-2050. Most widely used thyratron . . . rated for max. peak cathode current of 1.0 amp. and a max. peak inverse anode voltage of 1300 v.

. . . your choice, up to 15,000 volts!*

RCA is headquarters for a wide line of thyratrons—gas, hydrogen, and mercury-vapor types, triodes and tetrodes, miniatures and jumbo sizes. Peak cathode current ratings range from 0.1 to 77 amperes, maximum. Anode voltage ratings range from 350 to 15,000 volts, maximum peak inverse!



For prompt, on-the-spot service, call your local RCA Tube Distributor. He can supply you with RCA thyratrons—and all types of RCA tubes for industrial applications.

*Maximum peak inverse rating

TMK.®

RADIO CORPORATION of AMERICA

ELECTRON TUBES HARRISON, N. J.

GAS-FROM-COAL PLANT AT MORGANTOWN, W. VA.

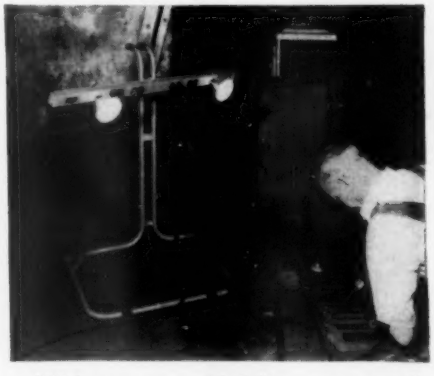
Award of a contract for building a new Bureau of Mines experiment station at Morgantown, W. Va., to the Southeastern Construction Co., of Charleston, W. Va., was announced by Secretary of Interior Chapman.

By approving the contract for the construction of buildings, driveways and other facilities, the Secretary authorized the start of the largest construction job yet carried out by the Bureau of Mines, except for the synthetic liquid fuel facilities. The authorized cost of the new station is 2.6 million dollars.

The principal activities initially planned for this station include: Research on the production from coal of synthesis gas, which may be used to produce liquid fuels, ammonia, alcohol, and other chemicals; headquarters for mining studies and health and safety work now carried on in rented quarters at Fairmont, W. Va.; and headquarters for the Bureau's petroleum and natural gas research in the Appalachian region.

The site of the new station is a 45-acre tract of land on the Collins Ferry Road, just outside the corporate limits of Morgantown, West Virginia.

PORTABLE ELECTRICAL CIRCUIT FOR MAINTENANCE MEN



With power provided from one central, portable unit, several operations involving the use of power tools can be performed at a time through the use of NE Rolla-Duct, recently placed on the market by National Electric Products Corporation, Pittsburgh 19, Pa. The unit can be extended to a height of 5½-ft. from the floor, is easily collapsed for movement or carriage, and comes in several different types. The one shown here provides both power and light; another has a strip for flood lighting, and a third comes with a strip of infra-red lighting units and several power take-offs. Approved by Underwriters' Laboratories, Rolla-Duct is provided with a 21-ft. power line of 12/3 heavy duty cable which can be safely used in damp or wet places and which is also chemical, acid, grease and oil-resistant. Each unit is fully grounded and protected with a circuit breaker incorporated in the strip. Its applications in the field of construction and industry are many. Each unit carries an approved rating for 20 ampere loads for 115 volt operation.

ARISTOLOY STEELS

THE SYMBOL OF QUALITY
in ELECTRIC FURNACE STEELS

Hot Rolled
Forged
Annealed
Heat Treated
Normalized
Straightened
Cold Drawn
Machine Turned
Centerless Ground

STANDARD STRUCTURAL ALLOY
BEARING QUALITY
ALLOY TOOL
SPECIALTY
NITRALLOY
CARBON TOOL
AIRCRAFT QUALITY



COPPERWELD STEEL COMPANY
WARREN, OHIO

176 W. Adams Street, Chicago, Illinois
P. O. Box 1633, Tulsa, Oklahoma
117 Liberty Street, New York, New York
803 Loew Building, Syracuse, New York
3104 Smith Tower, Seattle, Washington
325 W. 17th Street, Los Angeles 15, Calif.
Monadnock Building, San Francisco 5, Calif.
1578 Union Commerce Bldg., Cleveland, Ohio
7251 General Motors Bldg., Detroit, Michigan
1140 Lockwood Drive, Houston 20, Texas
528 Fisher Building, Detroit, Michigan

Cut materials handling time to the bone...

use Bond CASTERS

Industry's Choice



136-A Series. Double Ball Race Swivel Caster equipped with roller bearing semi-steel wheels. Easy swiveling. Pressure lubricated. Wheel sizes from 4" to 12" dia.; load capacities from 600 to 1700 lbs. per caster.

Bond Industrial Truck Casters . . . by design, by materials, by workmanship are the key to *low cost-high profit* parts handling. These are the casters that ably meet *any service condition.* Loads can be sturdy or fragile, heavy or light. Hauls can be long or short. Aisles can be broad or narrow. Turns can be easy or sharp.

Remember—the *right* Bond Casters will *cut your materials handling time to the bone!*

Get the story straight . . . leading industrial distributors throughout the country will be glad to give you complete information or write for your copy of the Bond Catalog K-38.

BOND FOUNDRY & MACHINE CO.
Manheim, Pennsylvania

MAYBE YOU WOULD LIKE A HENSTROMETER

The Henstrometer is a new mechanism which enables the automobile driver to determine at a glance just what gas consumption his car is using in relation to speed. A gas rate indicator hand on the Henstrometer shows miles per gallon while the speed rate hand indicates miles per hour on the same dial. For example if the speed hand indicates 40 miles per hour, and gasoline was being fed to the carburetor at the rate of two gallons per hour, then the small efficiency indicating hand would point to 20 on the same dial as the miles per gallon being obtained at that instant. If at the same speed the carburetor was using gasoline at the rate of three gallons per hour, the efficiency indicating hand would point to 13.3 as the miles per gallon being obtained.



Mr. Strong and the Henstrometer, which as set indicates 18 miles per gal. at 40 mph.

The Henstrometer was invented by Henry G. Strong, engineer, who is associated with the Carrier Corporation, Syracuse, N. Y. Mr. Strong is a registered professional mechanical engineer in Michigan and New York State. He is a member of Tau Beta Pi, honorary engineering fraternity, the American Society of Heating & Ventilating Engineer, and the American Society of Refrigerating Engineers. He is head of H. G. Strong & Associates, 133 Edwards Drive, Fayetteville, N. Y.

* * *

NEW TITRATION APPARATUS SAVES TIME, ELIMINATES BREAKAGE

A new titration apparatus designed by employees at the New York Naval Shipyard is based on the regular Karl Fisher apparatus, with modification which may be constructed from standard laboratory equipment. The new design allows modifications both in standardization of solutions and introduction of samples, greatly reduces time required for analysis, and eliminates both breakage and replacement of expensive titration vessel. Also greater safety for laboratory personnel results from reduced handling of injurious reagents. Details are available upon request to Navy Technical News, Office of Information, Navy Department, Washington 25, D. C.

Federal announces the first successful

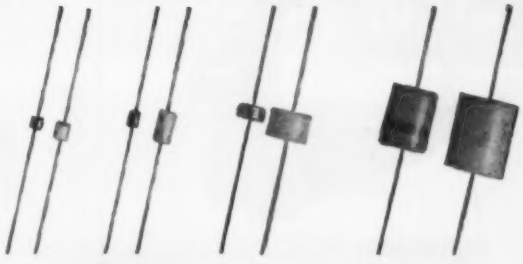
ENCAPSULATION

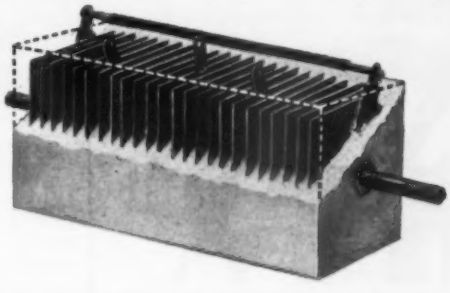
of SELENIUM RECTIFIER STACKS

—PLUS OTHER COMPONENTS

APPLICATIONS RANGE FROM TINY RECTIFIERS TO SUB-ASSEMBLIES AND COMPLETE POWER SUPPLIES







ENCAPSULATION OFFERS THESE MAJOR ADVANTAGES:

- Expands the application range of rectifiers
- Replaces oil-filled and special applications
- Ideal for sub-assemblies of various components
- Assists heat dissipation at high altitudes
- Better protection from fungus, corrosion, etc.
- Adaptable to complicated printed circuits
- Increases the over-all efficiency of equipments
- Provides ruggedness of a single, solid block

A unique development in component-sealing —opening to industry a new concept in

MILITARY EQUIPMENT DESIGN

FEDERAL—America's *pioneer* in selenium rectifiers—now enables manufacturers for the first time to obtain these versatile AC-to-DC power conversion units in encapsulated form . . . to use them where special conditions formerly made their application impossible!

Encapsulation gives *new flexibility* to military equipment designers . . . offers a new means of greater protection against vibration, mechanical abuse, moisture, fungus, salt air corrosion and other hazards . . . plus faster heat dissipation in rarified atmosphere.

Sub-assemblies comprising transformers, capacitors, resistors and other components —*inter-connected with selenium rectifiers*—may now be assembled in equipments as single expendable blocks. Broad opportunities are offered to printed circuits involving numerous components. Encapsulated rectifiers also provide an improved replacement for oil-filled and other special applications.

For full information on Federal encapsulation of selenium rectifiers, power supplies and complete sub-assemblies of various components, write to Selenium-Intelin Division, Dept. F-234.

America's oldest and largest manufacturer of selenium rectifiers

FEDERAL TELEPHONE & RADIO · FTR · AN IT&T ASSOCIATE

Federal Telephone and Radio Corporation

SELENIUM-INTELIN DIVISION

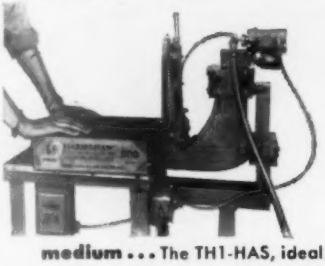
100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.

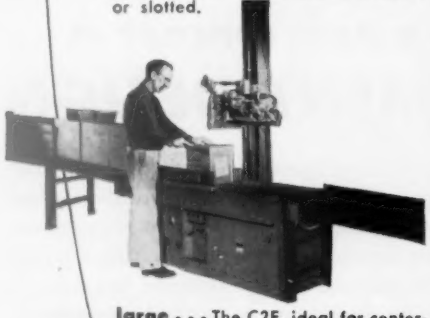
a complete line of
CARTON
STAPLING
MACHINES



small . . . The Boxer, ideal for portable use, small volume, and odd-job closures.



medium . . . The TH1-HAS, ideal for overlap cartons and end closures on long narrow boxes, either overlap or slotted.



large . . . The C2E, ideal for center-slotted cartons . . . closes tops and bottoms simultaneously . . . has paid for itself in 60 days!

30 models . . . for closing filled corrugated or fibre cartons . . . from small hand operated units to large multi-head automatic production models . . . there's an International Retractable Anvil Stapling Machine built just for your job! Close variable size cartons on the same machine . . . get pilfer-proof packaging . . . at savings up to 50% in shipping costs.

INTERNATIONAL STAPLE & MACHINE COMPANY
804 East Herrin Street
Herrin, Illinois

New Precision Cutting Process for Fine Work

Gas-Propelled Abrasive Particles Used for Number of High Precision Operations

Cutting by means of a high-velocity stream of gas-propelled abrasive particles, the newly developed S. S. White Industrial "Airbrasive" unit provides a fast, accurate method of doing a number of high precision operations, including controlled removal of metallized films from glass and ceramics, drilling thin sections of hard-to-work materials, cutting extremely hard or brittle materials, etching, light deburring and polishing. The unit is expected to find important applications in jewelry manufacturing and in the electronics, glass, ceramics and precision metal working industries.



Industrial "Airbrasive" unit in use. Cylinder at right contains the gas.

In operation, the "Airbrasive" unit directs a gas-propelled abrasive stream against the work surface through a sintered tungsten carbide nozzle. As it leaves the nozzle the stream travels at approximately 1100 feet per second and is only .018" in diameter. As a result, extremely fast and accurate cuts can be made. The process is claimed to have a number of advantages over standard rotary cutting tools.

The cutting action is accomplished without the usual increase in temperature and without the pressure and vibration ordinarily experienced with other cutting methods. This has been found to be of particular significance when working on materials such as germanium, whose physical or electrical properties might be affected by heat and shock.

Another advantage is that there is no direct contact of a tool with the work. This eliminates dimensional variations that might set in due to wear of the cutting tool or by surface irregularities in the work. On certain jobs and materials, the process is much faster than other cutting methods, including diamond tools.

No Effect on Soft Material

Despite the ease with which it cuts hard and brittle surfaces, the "Airbrasive" unit has proctically no effect on resilient or soft materials, such as rubber, cloth and certain types of plastics. Likewise, it will not damage skin tissue, should the operator accidentally put his hand in front of the abrasive stream. This selective cutting effect has been found most useful in removing metallized films coated on a relatively soft base.

Normally, a specially processed aluinum oxide powder is used as the abrasive. For certain applications which require a lighter abrasive, as classified Dolomite — a mixture of calcium and magnesium carbonates—can also be supplied. Standard commercial grades of abrasive are not suitable.

Any dry inert gas can be used as the propellant. Carbon dioxide is generally preferred, however, because of its ready availability.

The new "Airbrasive" unit operates on a 110 volt, 60 cycle A.C. current. It measures 8½x15"x12½" high and has a net weight of 42 lbs. In addition to the necessary detachable connections, spare parts and test equipment, it is supplied with two right-angle and one straight nozzle. The right-angle nozzles are used for manual operation. The straight nozzle is used for production work where it would be held in a fixed or automatically operated jig.

A.M.A. SEMINARS INCLUDE PURCHASING FUNCTION

The Manufacturing Division of the American Management Association, 330 West 42nd St., New York, N. Y., now has a series of 15 workshop seminars under way, in New York City, five of which were held in September, five of which are scheduled for October 15-17, and another five December 17-19.

The schedule of manufacturing seminars is part of an over-all program of 80 small-group meetings scheduled during the fall-winter season by the eight divisions of A.M.A. In addition to manufacturing, the fields covered include personnel, finance, general management, insurance, marketing, office management and packaging. Each seminar is a discussion group of not more than 15 executives under the guidance of one or more discussion leaders, meeting for three full days in exploration of a single area of management thought and practice.

Among the principal subjects to be discussed at the manufacturing seminars are forecasting, planning and control; administration of the purchasing function; organization of manufacturing executives job; improving performance of the materials handling function; developing foremen and supervisors; management of the engineering function; factory budget and cost control; current quality control problems; organization of the maintenance function; efficient operation of the small or branch plant; and, work standards and incentives to increase production.

The spring seminar program, covering the February-June, 1953 period will be announced later.

WHO SAYS TIRE CHAINS DON'T MAKE A DIFFERENCE?

Look at these tests conducted by the National Safety Council. With reinforced tire chains, the *stopping distance on glare ice at 20 mph is just about one-third* the distance required with conventional tires!

STOPPING DISTANCES ON GLARE ICE AT 20 MPH

with CONVENTIONAL TIRES the stopping distance is . . . . . 209 feet

with WINTERIZED TIRES the stopping distance is . . . . . 188 feet

with MUD-SNOW TIRES the stopping distance is . . . . . 201 feet

77' . . . with REINFORCED TIRE CHAINS the stopping distance is *only* 77 feet



These tests prove conclusively that reinforced tire chains are the best winter driving protection you can give your fleet. And the best reinforced tire chains are CAMPBELL Lug-Reinforced Tire Chains!



BETTER PRODUCT Extra metal in Campbell's patented Lug-Reinforced construction insures better traction and guards against skids and side-slips. When you specify Campbell, you buy the safest, longest wearing tire chains!



BETTER PACKAGING Campbell Chains are packed in sturdy boxes and color coded bags. They handle easily, store neatly in car trunks. Easy-to-use Chain Applier is included with every box of Campbell Passenger Car Chains.

Campbell's complete line includes chain for every type of tire. Stock up now . . . equip every unit in your fleet with CAMPBELL Lug-Reinforced Tire Chains—before the snow flies!



Easy-to-use Chain Applier with each set of Passenger Car Chains

CAMPBELL CHAIN *Company*

MAIN OFFICE: YORK, PA.

Factories: York, Pa., and West Burlington, Iowa



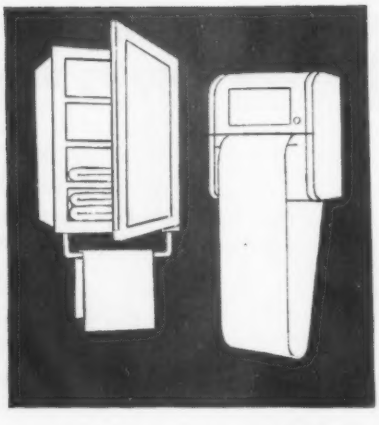
Chain for every need . . . INDUSTRIAL . . . MARINE . . . FARM . . . AUTOMOTIVE

COBWEBS IN THE THINK TANK?



Go wash your face!





Call it weariness, mental fatigue . . . or just the time of day . . . when you find yourself floundering on the job and want to wake up—GO WASH YOUR FACE. You'll be surprised how quickly your tired muscles and jangled nerves respond to soap and water and a rub with a fresh, absorbent cotton towel.

COTTON TOWEL SERVICE

No investment required. Get complete service on a low-cost basis. Under "Towel Supply Service" or "Linen Supply Service" in the telephone book, you'll find your suppliers—call them today!

You can rub and rub to your heart's content—even with a heavy beard, cotton towels will not shed or leave a trail of residue on your skin.

WHAT PICKS YOU UP, PICKS UP YOUR EMPLOYEES. When you provide clean cotton towels, workers get added benefits from their rest periods. Watch efficiency, production, and morale climb when "Cotton Fresh-Up" is on the job.

Linen Supply Association of America
and NATIONAL COTTON COUNCIL
22 WEST MONROE STREET, CHICAGO 3, ILLINOIS

SPDA LEAFLETS ON TOOL STEEL AND LABOR TURNOVER

Leaflets designed to help small businessmen, one on the technical subject "Selecting the Right Tool Steel," and the other "Is Your Labor Turnover Cost too High," were recently issued by the Small Defense Plants Administration in the dual series of technical and management aids to small business.

The leaflets are the sixth in the series issued by SDPA's Management Service Division and are available free on request from SDPA field offices in Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Denver, San Francisco, Los Angeles and Seattle.

The technical aid leaflet "Selecting the Right Tool Steel" explains the different types and alloys of tool steel that are encountered in the machine shop.

It discusses the use of carbon steels, high-speed tool steels, non-deforming tool steels, non-ferrous tool materials, steel for die materials, steels for cold and hot forming operation and for parting tools, tool steels for working various metals including aluminum, magnesium, bronze and copper, and tool steels for working plastics.

The management aid leaflet "Is Your Labor Turnover Cost too High" outlines a workable method by which the small businessman can estimate what his labor turnover costs are, and suggests methods for reducing this drain on business efficiency.

Other leaflets issued in the series, also available at SDPA field offices, are:

Technical Aids—Proper Alignment of Machine Tools; Sharpening of Drills, Lathe Tools, and Milling Cutters; Care and Maintenance of Belt, Chain and Gear Drives; Sharpening Certain Metal Cutting Tools Used in Machine Shops; and Precision Measurement of Workpieces.

Management Aids—How Small Plants Can Sell to the Federal Government; Adequate Production Control; Reducing Accident Costs in Small Industrial Plants; Business Insurance—I; and Reducing Accident Costs Through Safe Working Conditions.

40TH ANNUAL SAFETY CONGRESS CHICAGO, OCTOBER 20-24

The 40th Annual National Safety Congress, will be held in Chicago October 20-24. The Congress is the annual convention of members of the National Safety Council, and the Council is planing to make the one this year something special in celebration of 40 years of steady development in accident prevention.

An attendance of more than 12,000 is expected for the convention, which will be held in five hotels. Some 600 speakers will appear at 200 sessions, covering every conceivable phase of safety. In addition, the Congress exposition will contain about 250 exhibits of safety aids.



Easier installation with "Quikupl" made possible a reduction of 40 to 50% in time and labor when this line was installed in Feb. 1951. Since then "Quikupl" has been completely tested to complete satisfaction. Place: Precision Film Laboratories, Inc. New York.

"QUIKUPL"®

STAINLESS STEEL FITTINGS

Now . . . you can join tubing or pipe without threading, flaring, sweat-soldering, brazing or welding. Simply use "Quikupl" . . . the *completely new . . . completely tested* stainless steel fitting.

"Quikupl" cuts labor and installation time. Lines already installed show time and labor can be reduced 40 to 50%—or more. Tubing or pipe is simply cut to length, deburred and inserted into the fitting. Tightening a small screw completes the coupling. A resilient sealing ring . . . nontoxic to foods, and resistant to most chemicals . . . provides initial squeeze fit between fitting and tube or pipe. The higher the pressure, the better the sealing effect.

"Quikupl" is a money saver. You can use Schedule 5, the lightest pipe made—or tubing with even a lighter wall. You pay less per foot because you buy only the wall thickness needed to do the job.

"Quikupl" couplings, tees, adapters and elbows (45° and 90°) are available from Frasse warehouse stock in Types 304 and 316 Stainless Steel—tube and pipe sizes range from 1" O.D. to 4" O.D.

Facts about "Quikupl" fittings and how you can save with them are outlined in Frasse Engineering Memorandum #7. Send for your copy today.

Call FRASSE 1st FOR STAINLESS STEEL

Bars • Sheets • Strip • Plates • Wire
Tubing • Pipe • Valves • Fittings

GET FACTS

Peter A. FRASSE and Co., Inc.

New York 13, N. Y. 17 Grand St. Walker 5-2200
Philadelphia 29, Pa. 3911 Wissahickon Ave. Baldwin 9-9900
Buffalo 3, N. Y. 50 Exchange St. Washington 2000
Syracuse 1, N. Y. P. O. Box 1267 Syracuse 73-5241
Lyndhurst • Hartford • Rochester • Baltimore

Peter A. FRASSE and Co., Inc. 47AA
17 Grand Street
New York 13, N. Y.

Gentlemen: Please send me your Engineering Memorandum #7 containing complete facts about "Quikupl" stainless steel fittings.

Name_____ Title_____

Firm_____

Address_____

more than 80 Oakite cleaning materials

to help speed your production

BUYING CLEANING MATERIALS? Here are 5 good points to remember:

1. *No one material will remove all soils.* A cleaner made to remove light grease won't work on carbon. Use a material designed for the job.
2. *Use the right amount of material.* Too much is wasteful; too little is inefficient.
3. *Use the right method to apply the material.* Detergents designed for tank cleaning may not work as well in the spray machine.
4. *Don't buy cleaners on a cost-per-pound basis alone.* Cheap materials often break down fast, require more upkeep, cost more in the long run. Think before you buy—in terms of results, solution life, safety.
5. *Discuss even your routine cleaning operations with a cleaning specialist* before you decide on a material. He'll fit the cleaner to your problems, your water conditions, equipment, operating temperature, production schedule. He'll see that you get the most for your cleaning dollar.

Your Oakite Technical Service Representative is just such an expert, and his services are free. Call him today, or write Oakite Products, Inc., 54 Rector St., New York 6, N. Y.

SPECIALIZED INDUSTRIAL CLEANING

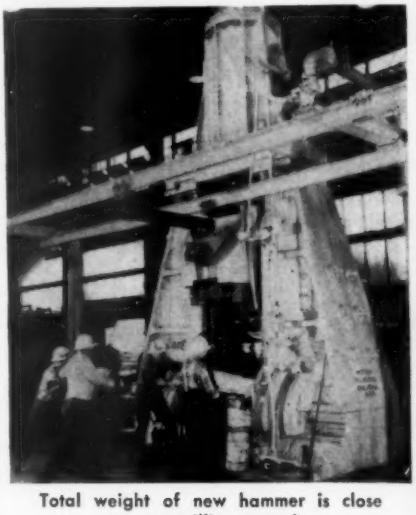
OAKITE

MATERIALS • METHODS • SERVICE

Technical Service Representatives in Principal Cities of U. S. & Canada

KROPP FORGE INSTALLS 40,000 LB. DROP HAMMER

The accompanying illustration shows newly installed 40,000 pound drop forge hammer, which marks completion of a $4,500,000 improvement and expansion program at the Kropp Forge Company, Chicago. The new hammer, one of the largest of its kind, represents a total weight of almost a million pounds with



Total weight of new hammer is close to one million pounds.

a concrete and steel foundation extending 40 feet beneath the floor's surface. Another new equipment unit is a 4,000 ton forging press. Important aircraft parts, such as landing gear forgings, structural members and jet engine parts are being produced by the new equipment.

NEW ALL-WHEEL TRANSPORT FIRESTONE TRUCK TIRE

A new truck tire that combines better traction for driving wheels and improved non-skid characteristics for braking wheels now is in mass production and is available to truck operators throughout the country, according to an announcement by Mr. H. D. Tompkins, Vice-President in Charge of Sales of The Firestone Tire & Rubber Company.

The new Firestone Transport truck tire is being heralded as the greatest all-wheel highway truck tire ever built, offering great improvements for drive and trailing wheels.

The new Transport tire features: (1) A stronger gum-dipped cord body construction, (2) Revolutionary new, wider, flatter tread design, (3) Extra-strong beads—wider, more compact with more and stronger steel wires, (4) A completely functional shoulder design.

"After millions of miles of exhaustive road testing," Mr. Tompkins said, "we have proved that the cord body of the new tire has a 60 per cent stronger bond between the cords and the body rubber. This advanced step is made possible by new discoveries in chemical compounding which add much greater adhesive strength in the gum-dipping process. Because of the increased resistance to separation and cord fatigue, the new tire has strength heretofore unknown in tire manufacture."

Work heavy, bulky, hard to move?

Bring the tool to the work...

with Black & Decker Sanders and Grinders!



They're powerful and portable!

NO MATTER how big or bulky your abrasive jobs, you'll cut costs and speed up work when you switch from hand methods to Black & Decker power! B&D Sanders drive abrasive discs, saucer grinding wheels, "Whirlwind" wire cup brushes, gouging and planing heads. B&D Portable Grinders drive grinding wheels, "Whirlwind" wire wheel brushes, cotton buffing wheels. And *both* give you: (1) Dependable, full-powered motors tailor-made by Black & Decker for the tools they drive; (2) Perfect balance for easy handling, less operator fatigue; (3) Tough, longer-lasting parts for extra years of service, lower tooling costs!

See your nearby B&D Distributor for demonstrations, expert help on any tooling problem. Write for free catalog of over 100 Electric Tools to: THE BLACK & DECKER MFG. Co., 607 Pennsylvania Ave., Towson 4, Maryland.

LEADING DISTRIBUTORS EVERYWHERE SELL

B&D Black & Decker PORTABLE ELECTRIC TOOLS

WORLD'S LARGEST, MOST COMPLETE LINE


DRILLS


ELECTRIC HAMMERS


BENCH GRINDERS


SCREW DRIVERS


SAWS


PORTO-SHEARS

• GIFTS
• PREMIUMS
• AWARDS

BUY DIRECT FROM THIS NEW 1953 WHOLESALE CATALOG

WRITE FOR CATALOG



OVER 280 PAGES OF NATIONALLY KNOWN

- DIAMONDS
- WATCHES
- JEWELRY
- SILVERWARE
- ELECTRICAL APPLIANCES
- TROPHIES
- PEN SETS
- LEATHER GOODS
- MANY OTHER GIFT LINES

WALDRON & CO.
INCORPORATED
1211 CHESTNUT STREET
PHILADELPHIA 7, PENNA.

Hollow Forgings up to 35" OD With 4½" Walls Produced by New Method

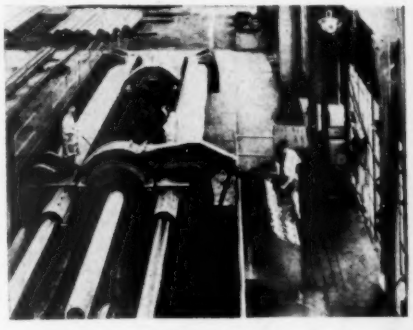
Both Alloy and Carbon Steels Can be Used in the Process.

Installation of the nation's largest press for forming boiler drum plate, and the introduction into America of a method of forming heavy-wall hollow forgings by piercing and drawing an ingot, is announced by the Babcock & Wilcox Company. The new press and draw bench, an important part of the company's $30,000,000 expansion program, installed at Barberton, Ohio boiler works, will produce a rough hollow forging up to 35" outside diameter with 4½" walls, in a matter of minutes. Until now it has been necessary to make such pieces of steel plate rolled and welded at the seam or from a solid forging with the center bored out.

The vertical press has a normal capacity of 6,500 tons or an intensified capacity of 8,500 tons. It is equipped with massive bending beams 42 ft. long and its open-ended design makes it possible to bend even larger plates. Its overall height is 64 ft. from the bottom of the pit in which it stands. The same huge press used to form heavy plate is also used to pierce or form an opening, lengthwise, into a heated ingot. The hollow ingot, or bloom, is then taken to the second piece of equipment, a horizontal draw bench. It is then fitted over a mandrel to hold inside dimensions and the hot bloom is forced through a series of ring dies by the head of the mandrel, reducing the outside diameter and increasing its length to proper size. The result is a seamless, hollow forging of predetermined inside and outside dimension.

The new equipment will produce seamless hollow forgings from a minimum of 8" inside diameter and ¾" wall thickness up to a maximum inside diameter of 26" and a wall thickness of 4½" in lengths up to 22 feet.

As the special tooling for this process can be changed quickly, it was explained, it is possible to produce one or two lengths of a particular size or of a specially desired specification of steel at very little unit cost per forging for the change-over. Both alloy and carbon steels can be successfully used in the process.



Drawing a hollow forging. The forging is forced by the mandrel through a series of ring dies to produce predetermined inside and outside diameter.

An ingot or billet of varying cross-sections such as gothics, hexagons, octagons, rounds, or squares with round corners, can be successfully shaped on the equipment, the company said. Various shapes of mandrel and dies, other than round, can be used on the horizontal draw bench to produce many different cross-sections such as squares, rectangular shapes, "D" shapes, or ovals.

PRODUCTION POOL HEADED BY LARGE COMPANY

Formation of a new production pool—composed of a large company which plans to seek prime defense contracts and several small companies which hope to perform under subcontracts — was announced recently by Small Defense Plants Administrator Telford Taylor.

It is the 16th small business production pool to be approved under the current mobilization program and is the first of the type in which a large company combines its resources with those of smaller companies to their mutual advantage.

The firms that have been invited by SDPA to form this production pool, known as the General Tire Production Pool, Inc., are the General Tire and Rubber Company, Akron, Ohio; Ectro, Inc., Delaware, Ohio; Jackson Electric and Manufacturing Company, Akron, Ohio; The McCaskey Register Company, Alliance, Ohio; and Sterling Manufacturing Company, Cleveland, Ohio.

"Unlike most small business production pools, which are encouraged to obtain any kind of defense contracts they can perform, this pool is, because of its nature, limited in scope," Mr. Taylor said. "It will not work in the tire and rubber field, and other concerns in the tire and rubber field will not be admitted to membership.

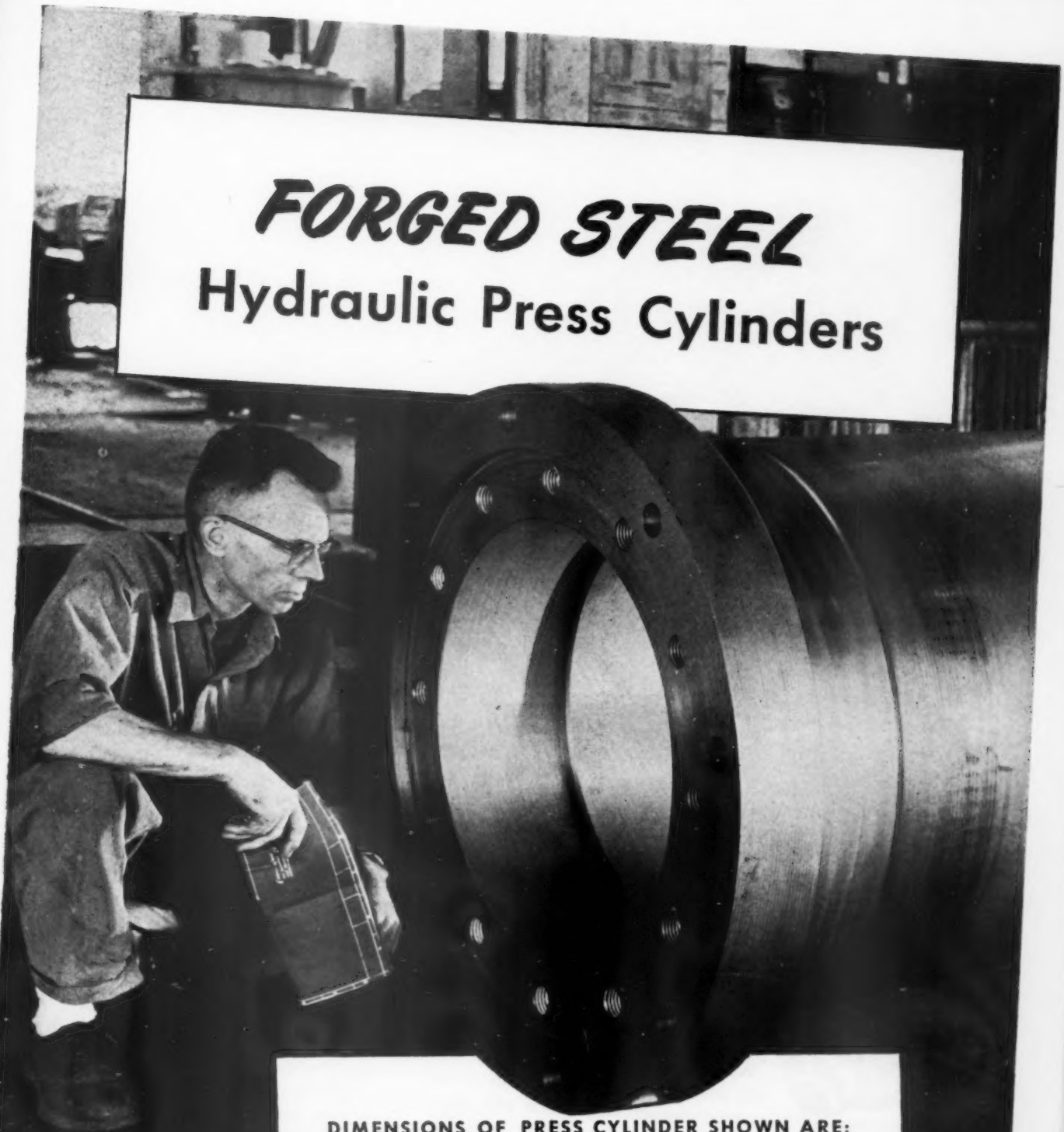
"It is planned", Mr. Taylor added, "that General Tire and Rubber Company will make use of its financial and other resources to obtain prime defense contracts in the precision electrical field. Under normal conditions, the company would not be eligible to obtain such a contract since it does not have all of the necessary facilities.

"However, by combining its resources with a number of small firms that have facilities necessary to perform high precision electrical mechanical assemblies the company hopes to qualify for prime defense contracts."

Mr. Taylor explained that prime con-

(*Please turn to page* 366)

FORGED STEEL
Hydraulic Press Cylinders



DIMENSIONS OF PRESS CYLINDER SHOWN ARE:

- Bore—23.250″
- Overall Length—67½″
- Finished Weight—10,200 lbs.

Whatever your forging requirements, large or small, finished or rough, you may depend on National Forge to meet your specifications.

NF NATIONAL FORGE AND ORDNANCE COMPANY

IRVINE, WARREN COUNTY, PENNSYLVANIA

Steel Makers • Forgesmiths • Heat Treaters • Machinists
Machinery & Testing Equipment Manufacturers





Rope that Sticks With You

We think of the world as a pretty big place, yet one distributor alone has sold enough Bethlehem wire rope to girdle the globe several times. And this total, impressive though it is, represents only a fraction of all the Bethlehem rope sold through the years.

This, we think, is the best possible evidence of a product sound in quality, sound in performance. Bethlehem rope has been approved by a jury of users far too vast to number — men fully qualified to pick and choose. They could, if they wished, buy other makes of rope. But they stick with the Bethlehem brand because it sticks with them.

It gives them every penny's worth of value for the hard cash they spend.

If you yourself are a user of Bethlehem rope, we don't have to tell you much about it. If you aren't, we hope you'll soon try some of this tough, sturdy product. It will do the job you expect it to do . . . and more.

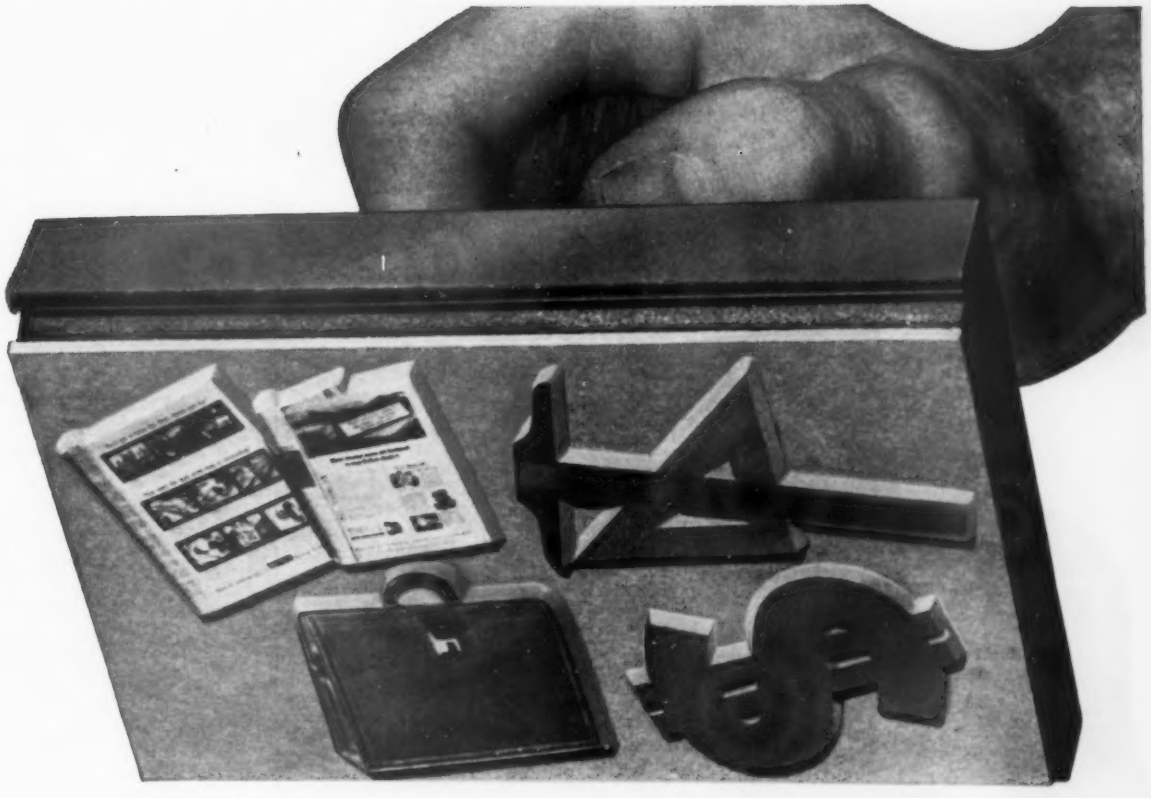
For a great many applications we strongly recommend Form-Set (preformed) wire rope. It's so easy to handle, and it now costs very little more than nonpreformed.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

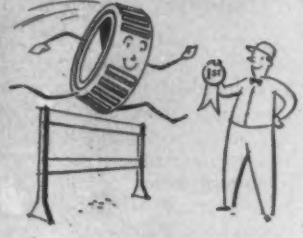
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

When you think WIRE ROPE . . . think BETHLEHEM



A top P.A.'s stamp of approval looks like this

P.A. Notes:



FIRST IN QUALITY. Rigid quality control at every step in manufacture insures the uniform high quality of Timken tapered roller bearings.

WELL KNOWN. The Timken Company's advertising program makes over 688,000,000 reader impressions a year. Four out of five think of "Timken" first.





HELPING HANDS. Engineers of the Timken Company are always ready to help you with bearing mounting and assembly problems. Quick assistance is as near as your phone.

BEFORE a top P.A. approves the purchase of a component part, he takes four things into account. First, the part's quality. Second, the manufacturer's services that back it up. Third, the public acceptance it enjoys. And, of course, its price.

The true value of the component parts you buy is determined by these four factors—quality, service, public acceptance and price. And price alone is outweighed by the other three factors. This simple formula shows you why:

$$Value = \frac{quality + service + public\ acceptance}{price}$$

Timken® bearings offer you the most value in tapered roller bearings. They give you the finest quality, the best engineering service and widest public acceptance. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

TIMKEN

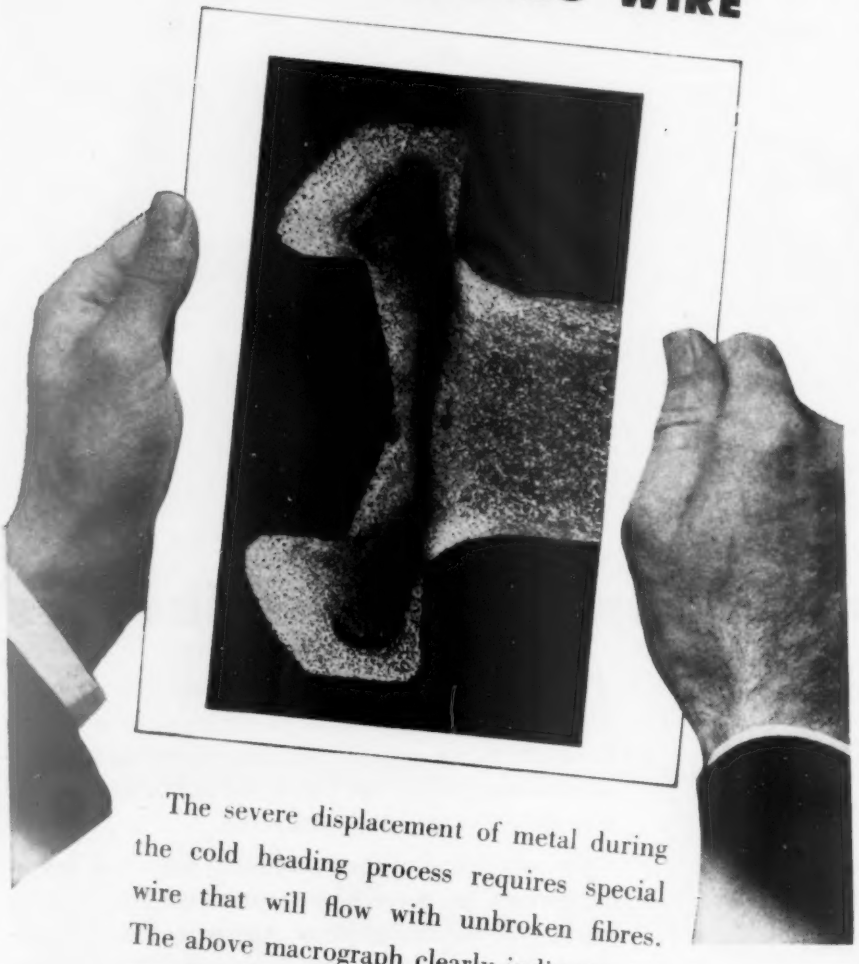
TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION

KEYSTONE
"SPECIAL PROCESSED"
COLD HEADING WIRE



The severe displacement of metal during the cold heading process requires special wire that will flow with unbroken fibres. The above macrograph clearly indicates the excellent grain flow in a recessed-head screw made from Keystone "Special Processed" C-1012 Cold Heading Wire.

Keystone's "Special Processed" Cold Heading Wire is available in C-1035 and C-1038 analysis for high strength, heat treated screws and bolts.



INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company
PEORIA 7, ILLINOIS

(*Continued from page* 362)

tracts will be held not by the pool, but by the General Tire and Rubber Company and it is anticipated that the items to be manufactured under the pool arrangement will be of a type not generally considered by defense procurement officials as suitable for manufacture by small concerns. "It is expected" he said, "that the pool will be of primary benefit to the small companies who belong to the pool."

The formation of production pools is encouraged by SDPA as a means of increasing small business participation in the defense effort. The combination of productive facilities of numerous small concerns enables them to perform larger and more complex contracts than they could perform individually.

POWER SHOW IN NEW YORK FIRST WEEK IN DECEMBER

Extraordinary developments in power plants are forecast in plans for the 20th National Exposition of Power and Mechanical Engineering to be held in Grand Central Palace, New York, the first week in December. Technical advances of revolutionary nature will be under review at that time at the annual meeting of the American Society of Mechanical Engineers under whose auspices the Power Show is held. The Power Show will be featured by more than 300 exhibits. The exposition is under the management of the International Exposition Co., with permanent headquarters in Grand Central Palace, New York.

AMENDMENT TO DIR. 3, CMPI PERCENTAGES OF ALLOTMENTS

Smaller orders for carbon steel, copper and aluminum controlled materials need not be reduced below carload quantities, provided users do not order in excess of their authorized allotments, the National Production Authority, Department of Commerce announced in releasing an amendment to Direction 3 to Controlled Materials Plan Regulation 1.

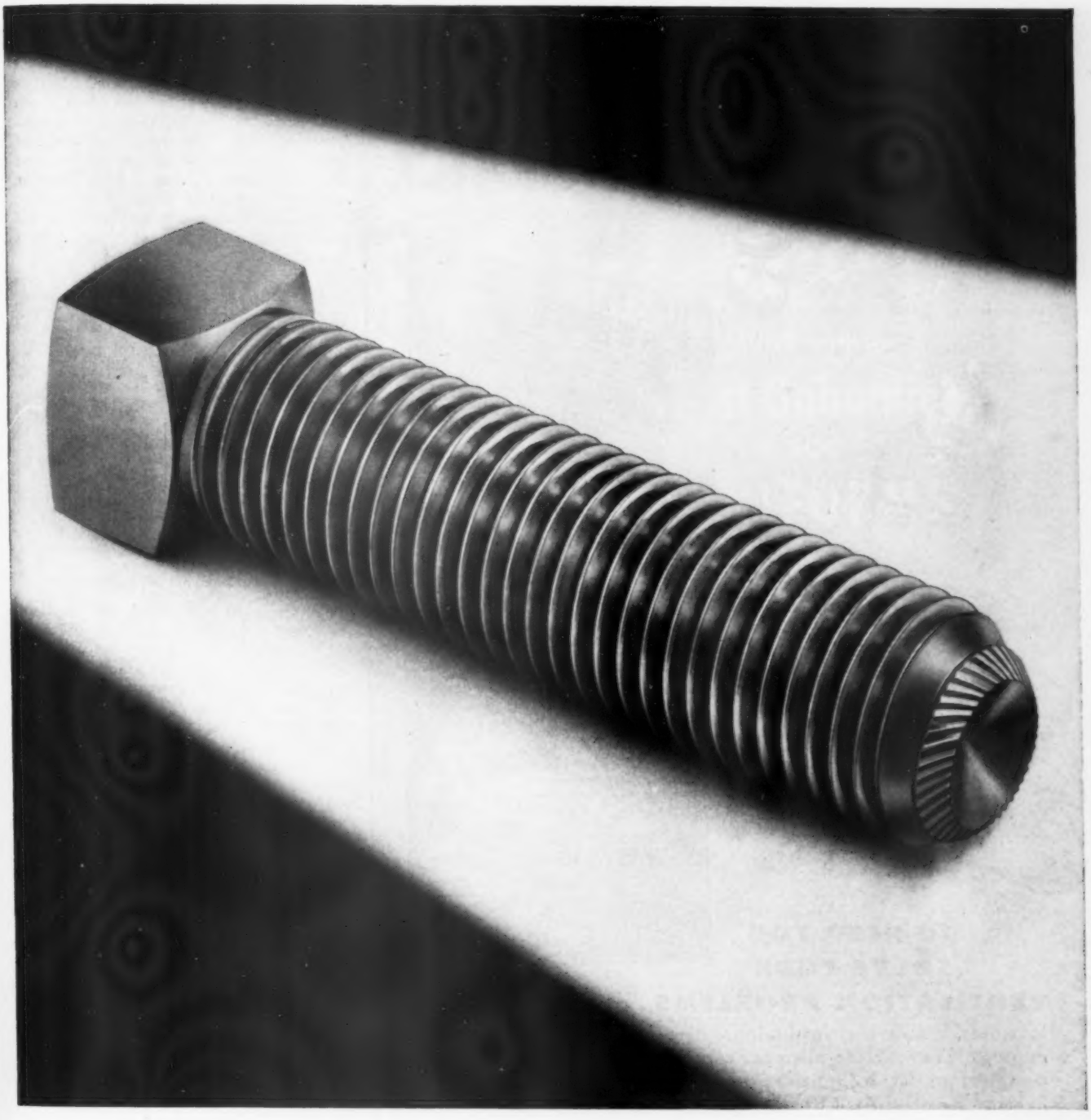
Direction 3 establishes the percentages of allotments which may be ordered during the first two months of a quarter.

The amendment will assist smaller producers in taking advantage of price and freight differentials in ordering these materials in the quantities permitted under the liberalized self-authorization procedures of the Controlled Materials Plan.

Specifically, the amended direction provides that no person is required to reduce his delivery order for carbon steel, copper or aluminum below a carload lot, or below his allotment authority if it is less than a carload lot, provided he does not exceed his allotment authorization by ordering such a quantity.

It is anticipated that the action will assist controlled materials producers and their customers in the scheduling and delivery of orders, NPA said.

Additional information may be obtained from Department of Commerce field offices.



UNBRAKO SQUARE HEAD SET SCREWS

are consistently strong self-lockers

Heads that *will not twist off* and points that will not work *loose* are UNBRAKO features. These screws are particularly useful in severe service applications and on high speed, vibrating equipment. Write for your copy of UNBRAKO *Standards*. STANDARD PRESSED STEEL CO., Jenkintown 31, Pa.

Standard points are self-locking knurled cup and half dog. Standard sizes are ¼" to 1". They are available from distributors' shelves.

UNBRAKO SOCKET SCREW DIVISION **SPS** **JENKINTOWN, PENNSYLVANIA**

IS AIR COSTING YOU MONEY

Air cost money? You bet it does . . . hot air, stagnant air, disagreeable odors cost plenty in terms of employe efficiency and customer relationships.





TO HELP YOU SOLVE YOUR VENTILATION PROBLEMS . . .

in stores, offices and institutions, here are two authoritative catalogs. They include plans for effective fan installations, plus complete product information on dependable Emerson-Electric Exhaust Fans and Air Circulators.

Make air an asset, not a problem . . . write for these catalogs today! Both are yours with no obligation.

THE EMERSON ELECTRIC MFG. CO., ST. LOUIS 21, MO.

The Emerson Electric Mfg. Co.,
St. Louis 21, Missouri

FREE—Without obligation, send me the Emerson-Electric Catalog(s) checked:

☐ No. T101-A Exhaust Fans ☐ No. T101-B Air Circulators

NAME _____ TITLE _____

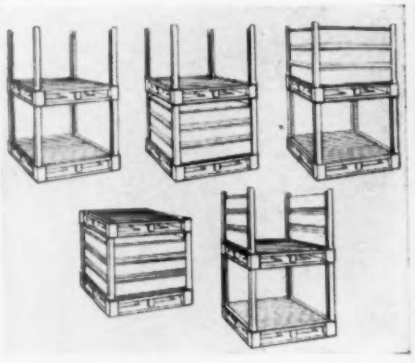
COMPANY _____

ADDRESS _____ CITY _____ STATE _____

EMERSON ELECTRIC
FANS • MOTORS APPLIANCES

CAN BE USED AS PALLET, STAKE PALLET OR HANDLING BOX

The Erect-A-Pallet, a new materials handling development, has just been introduced by Phillips Mine & Mill Supply Company, Pittsburgh. This all steel unit can be used in a variety of ways: as a flat pallet . . . as a four, three or two-sided materials handling box . . . as a pallet with stakes for handling and transporting angle iron and similar long items.



Possible Combinations of Erect-A-Pallet

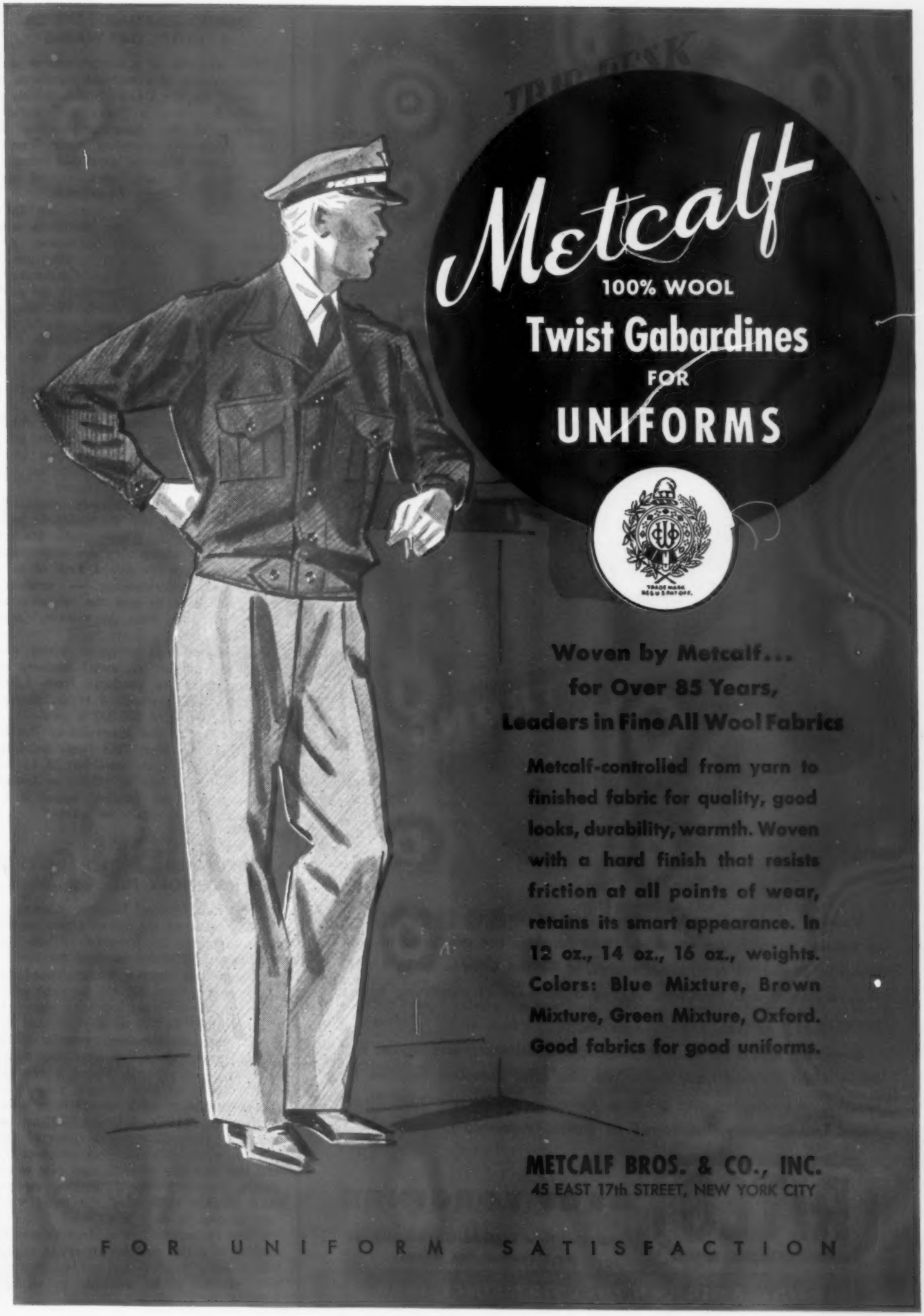
Featuring an all-welded construction, the Erect-A-Pallet is composed of three basic sections: (1) a heavy-duty, 8-way-entry pallet for fork or pallet lift truck use, (2) four strong corner stakes and (3) sides of heavy gauge corrugated steel, which slide in corner stakes.

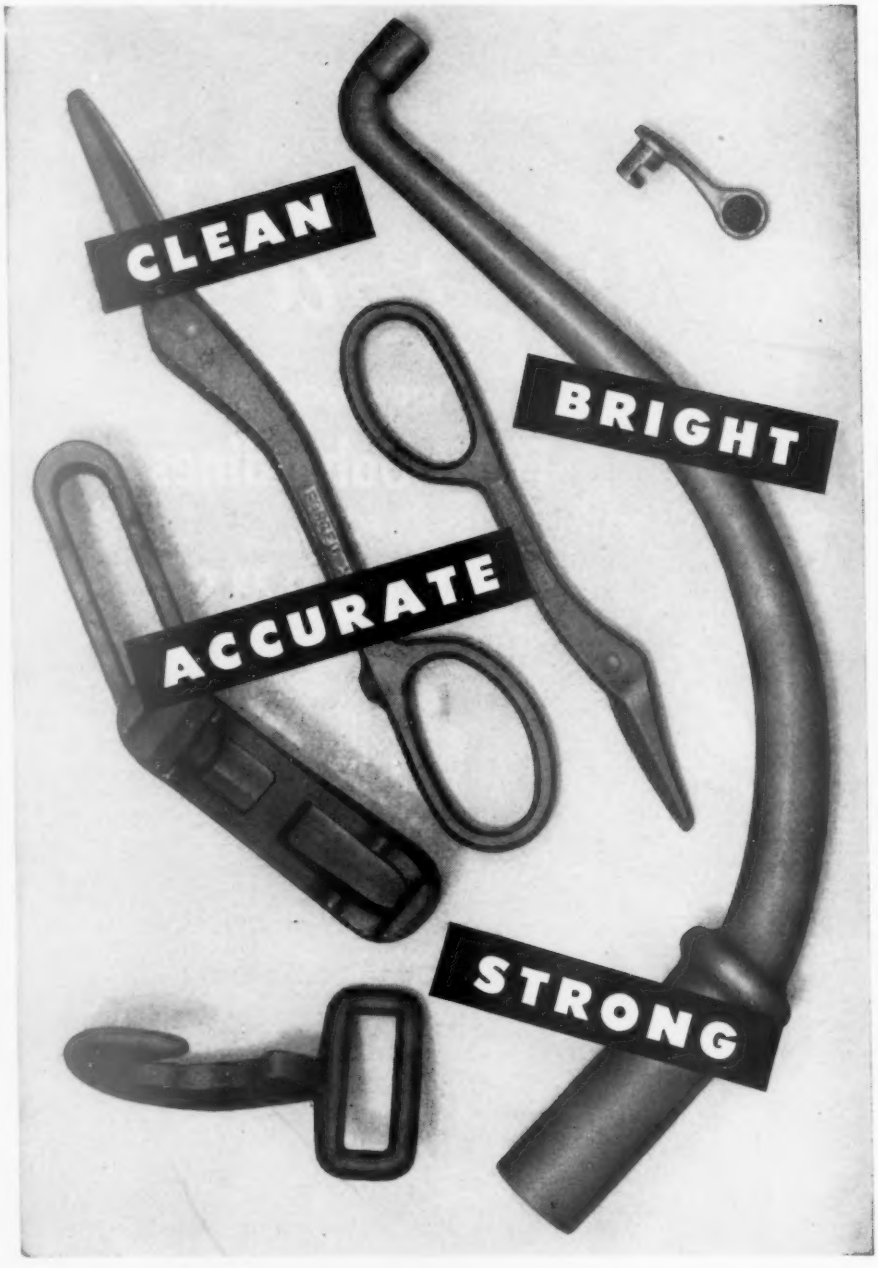
Carrying capacity of the unit is 4000 lbs.; tiering capacity is 16,000 lbs. The pallet is composed of strong cross sections, with the deck made of corrugated steel for maximum rigidity with minimum weight. Regardless of which form of the Erect-A-Pallet is used, the unit is rigid and all parts fit snugly. It is easily assembled or dismantled by one man. Two sizes are available: 48″ x 48″ and 40″ x 48″.

OFFER SAMPLE KIT OF PACKAGING CUSHION MATERIAL

Free sample kit of improved "Fibro-Pad" protective packaging cushion material is being offered by the Fibleco Illinois Corp., 311 No. Des Plaines St., Chicago, Ill. The company states that the new pad provides two-in-one protection for products of every size and shape, and that it should be of interest to companies packaging goods under Army, Navy or Air Corps contracts as it is available in a choice of five outer wraps to meet the requirements of all regular Government packaging specifications as follows: Grade A Greaseproof (JAN B 121); Non-Corrosive Crepeted Neutral Kraft (JAN B 130 A); Type C-1 Waterproof, Asphalt-Laminated (Jan P 125); and VCI (Mil P 3420) Vapor Corrosion Inhibitor wrapper.

The new Fibro-Pad is said to eliminate double-wrapping, and to produce substantial savings in time and material. A soft inner padding of fluffed, chemically neutral fibers cushions the product against shock and pressure, while the tough protective outer wrap shields against water, grease, scratching and rubbing.


Metcalf
100% WOOL
Twist Gabardines
FOR
UNIFORMS
Woven by Metcalf...
for Over 85 Years,
Leaders in Fine All Wool Fabrics
Metcalf-controlled from yarn to finished fabric for quality, good looks, durability, warmth. Woven with a hard finish that resists friction at all points of wear, retains its smart appearance. In 12 oz., 14 oz., 16 oz., weights. Colors: Blue Mixture, Brown Mixture, Green Mixture, Oxford. Good fabrics for good uniforms.
METCALF BROS. & CO., INC.
45 EAST 17th STREET, NEW YORK CITY
FOR UNIFORM SATISFACTION



It's wise to specify Ritco Bright Finish Drop Forgings when accurate parts of topmost strength are required. These forgings are produced to your blueprint in steel or non-ferrous metals, in weights from ¼ lb. to 15 lbs. They're smooth and flash-free, require a minimum of machining before assembly into your product.

Remember RITCO for drop forgings, special fasteners, and regular and heavy head finished body bolts. We also offer complete facilities for finishing — machining and grinding. Estimates gladly submitted. Rhode Island Tool Company, 148 West River Street, Providence 1, Rhode Island.

RITCO **DROP FORGINGS**

Exclusive New England Representatives for Cleveland Cap Screws.

SERVING AMERICAN INDUSTRY SINCE 1834

UNIFIED STANDARDS SYSTEM A "MUST", GAY WARNS

The adoption of a comprehensive and unified system of a national standards is a "must" for the United States, which is rapidly becoming a "have not" nation, members of the American Society of Tool Engineers attending their Twentieth Annual Meeting were told recently by Roger E. Gay, president of the American Standards Association.

"There was a time when our lack of a national system of standards was simply an unfortunate economic deficiency," Mr. Gay, who is also president of the Bristol Brass Corporation, told the engineers. "Those days are past and time is running short. We simply cannot afford to continue to waste the mountains of money and materials that we have been wasting through lack of standards.

"We cannot afford the old cross-purpose between the men who design and the men who produce", said the ASA president. "We must not continue production with Government on one level and industry on the other, with an imperfect stairway between them.

"In industry and business, standards provide a quality and guarantee to help attract customers. Where there are no standards, or where they are inadequate or wrong, there are delays, lack of harmony and understanding — products that just don't fit and the withdrawal of the customer from the market," said Mr. Gay.

He told of one company which reduced the number of metal washers it was using in its products from 1,350 varieties to 150 standard types, resulting in a saving of $25,000 a year.

"According to the Magazine of Building," said Mr. Gay, "the home-building industry can cut its cost by 20 to 40 percent with no loss in quality or living advantages of the finished house if it makes an all-out attack on waste."

MAKE AERIAL PHOTO SURVEY TO INVENTORY FUEL ON HAND

The Philadelphia Electric Company recently initiated the use of a new aerial photo method to inventory "fuel on hand" in their enormous coal stockpiles. This new air survey system, used to check more than 500,000 tons of coal stored in ten different locations, obtained the inventory figures in days instead of weeks, and cut inventory costs by 25%.

The survey plane flew over the stock piles at a set altitude. Using a precise timing device on their camera, they took two pictures of each seventy-five acre section, at slightly different angles. In this way, three-dimensional views of the terrain were obtained photographically, and the contours of each coal pile were shown exactly. Special plotting equipment quickly established the cubic volume of coal in each pile.

When rechecked this modern scientific method of aerial coal inventory, in addition to being much faster and less expensive, proved to be accurate to within 3-5%.



"Most valuable player"

IN THE LEAGUE

Again Emery's AIR PROCUREMENT SERVICE is acclaimed by the Nation's leading purchasing and production executives as the outstanding air shipping service in making "on-time" delivery from any point in the Nation right to production lines.

When it comes to all-round performance—day or night, rain or shine—Emery's AIR PROCUREMENT SERVICE has what it takes to get needed deliveries to you faster and more dependably than any ordinary shipping service.

Only Emery uses *all* airlines, *all* transportation—passengers or cargo, express or freight—everything that moves in the air and on the ground!

Only Emery maintains absolute control of your shipment all along the way through its own nationwide private wire system and coast-to-coast corps of expediters!

Only Emery knows where your shipment is at all times . . . takes instant action to route it around trouble spots!

Only Emery can tell you when delivery will actually be made . . . or let you know in plenty of time if delivery is unavoidably delayed.

These are the reasons why Emery is rated the most valuable player in the air shipping league. You, too, can call on Emery any time . . . then sit back while "The World's Fastest Transportation System" scores another win for you!

EMERY AIR FREIGHT CORPORATION

General Office: 801 Second Avenue, New York 17, ORegon 9-1020

Offices in: Atlanta, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Dayton, Detroit, Hartford, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis-St. Paul, Newark, Philadelphia, Pittsburgh, Rochester, St. Louis, San Francisco, Seattle, Syracuse, Washington, D.C. *Agents in all other major cities and towns in the U.S.A.*

an ACCO product WIRE

ROUND

FLAT

OR

SHAPED

PAGE

makes them all...

LOW CARBON
HIGH CARBON
STAINLESS
SPECIAL ALLOY
ARMCO IRON

YOU draw the Shape
—Page can draw the Wire

Tell us the way *you* want it. We'll follow *your* specifications.

Cross-sectional areas up to .250" square; widths up to ⅜"; width-to-thickness ratio not to exceed 6 to 1.

Wire or Write Today

PAGE WIRE

ACCO

PAGE STEEL AND WIRE DIVISION
AMERICAN CHAIN & CABLE

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia, Portland, San Francisco, Bridgeport, Conn.

Heavy Presses Revolutionize Plane Production

Capacity of New Extrusion and Forge Presses Ranges from 8,000 to 50,000 Tons — New Production Will Eliminate "Bits and Pieces" Assembly

Construction of 17 heavy presses—eight extrusions and nine forges—ranging from 8,000 to 50,000 tons capacity has begun at various points in the United States under the direction of the U. S. Air Force.

Within the next few years, these giant machines will be turning out large aircraft and engine parts in a fraction of the time required by our present methods, and at tremendous savings in dollars.

In scope and magnitude of operation these presses will surpass any ever before built in this country. They will do away with a great deal of the present uneconomical "bits and pieces" assembly, and turn out whole wing sections, ribs, frames, and other structural members in one motion. Instead of taking a lot of small pieces and putting them together into one big piece — spars, for example — which now have to be laboriously fashioned out of many pieces of metal—will be stamped out in a single operation.

Three Presses Operating

The Air Force is handicapped by limitation of the present large press equipment. There are only three in the United States. One is located at the Wyman-Gordon plant in North Grafton, Mass., one at the Alcoa plant in Cleveland and the third at the Bohn Aluminum and Brass Co., Adrian, Mich. The first is of American construction, the others were brought from Germany by the Air Force in its determination to break the production bottleneck.

Before the arrival and assembly of the German presses, each of 16,500 tons capacity, the 18,000 ton Wyman-Gordon was the only heavy press at work in this country. It is turning out sections of the landing gear for B-47s and making spars for F-84s. However, its capacity is limited and it is 3,000 miles from the West Coast, where half the aviation industry is located.

Production Still Inadequate

The Alcoa press is just getting into production and the one at Bohn Aluminum will start within approximately six weeks, but even with the three in full operation, production still will be inadequate.

Using the equipment now at hand, as long as six months is necessary to complete a set of airplane dies. Existing die block capacity is estimated at from 40,000 to 50,000 tons annually, and the majority of this is capable of producing only the smaller sized blocks. It has been estimated jointly by representatives of the forging industry and the Air Force that when the heavy press program is operating at an efficient level the annual die-block requirement alone may well run from 50,000 to 75,000 tons, and these blocks may average in excess of 20 tons each.

The heavy press is readily adaptable to the handling of new shapes, and will last many years. While modifications on airplanes are being made all the time, these changes apply mainly to certain aspects of the plane's performance and requirements. The F-80, Shooting Star, was started in 1942 and has gone through a dozen model changes, but the basic structure of the aircraft has not changed. Even in the case of an entirely new design, the only part of the press which would have to be changed would be the die block. New die blocks could be used on the same press, and the same handling equipment would be used in all the other machining operations.

Assets of the Press

Research with magnesium and the newer high-strength aluminum alloys discloses that in no other way can these metals be so efficiently handled. While they tend to shatter under the impact of a hammer blow—the oldest of the metal working methods—under a press they flow.

The forging press uses a process whereby an ingot is put under tremendous weight and the required design stamped out, while the extrusion press literally squirts the hot steel through a die to accomplish the same purpose.

The Northrup Company, which makes the F-89, has estimated a potential saving of $1,000,000 on 500 of these planes if a heavy press could have been used to forge the light alloy parts. This is $2,000 apiece on a small plane. Multiplied by the large number of airplanes scheduled to be built under the Air Force and Navy programs, the saving is incalculable.

The Air Force report shows that on another model the use of forgings would reduce the labor by more than 1,500 man hours per airplane.

The new presses under contract are to be erected upon Government-owned land, or on land under long term lease. This will eliminate any problem of removal, and will insure control by the Government. Locations were selected so that each operation will be a self-sufficient and integrated unit, independent of utilities and other facilities of the contractors. Congress has appropriated $210 million toward this program and additional funds of $179 million were requested in the 1953 Air Force budget.

In the event that large scale manufacture of military aircraft were to be suspended, the presses could be used commercially, not only for airplanes, but for ordnance, ships and automobiles.

SEE CLASSIFIED SECTION
PAGE 410

BEFORE...

Get the lead out



AFTER...



. . . of your plants!

Prehistoric packaging methods skyrocket production time...eat into profits...and make stockholders hold angry meetings. Bring in **Permacel®!** In dozens of ways, **Permacel Tapes** simplify and speed production... cut down damage...make shipping easier! Get things done faster, cheaper and better with **Permacel.** Be glad to show you how anytime.

PERMACEL®—TEXCEL® PRESSURE-SENSITIVE TAPES • INDUSTRIAL TAPE CORP., NEW BRUNSWICK, N. J.



Roth Rubber Protects New VAPOR Fire-Control Thermostat Against Shock and Vibration

Roth Rubber Company is now moulding for Vapor Heating Corporation a new fire-control thermostat, designed for maritime and industrial applications. It must resist a shock equal to 100 times the pull of gravity, must withstand 30,000 vibrations per minute—and must register all temperature changes to .03° accuracy.

To mount this thermostat successfully and meet these rigid in-service specifications, many manufacturers tried a wide variety of materials. But Roth—*and only Roth*—developed a mounting that would meet all three service requirements at reasonable cost.

Roth Rubber mounted the thermostat in a specially formulated Neoprene sponge, covered top and bottom with solid, oil-resistant Neoprene. The Roth-developed housing cushions the thermostat so successfully that in performance tests it has far surpassed the exacting specifications established for it.

What's your rubber problem? Roth can help you, too!

● *Custom Manufacturers of Industrial Rubber Products since 1923*

Roth Research Brings Results With Rubber

Fulfill Contracts Faster

Get this Informative Manual—FREE!



Mail coupon and learn how Roth research and facilities can help you develop bids and improve your products; how we can help you cut costs, boost output, and simplify production.

ROTH RUBBER COMPANY

1856 S. 54th Avenue, Chicago 50

Name_____

Position_____

Company_____

Address_____

City_____ Zone___ State____

PAD CITES NEED FOR MORE FUEL OIL

Higher refinery yields of kerosene, home-heating oil, and diesel fuel are required in the next few months to avert an East Coast shortage of these products next winter, the Petroleum Administration for Defense has reported.

The announcement was based on a recently completed survey among individual suppliers on the East Coast, and refiners representing substantially all of the capacity in PAD Districts I and III.

Assuming normal weather, PAD estimated that middle-distillate consumption in Districts I and III during the 1st quarter of 1953 will average some 850,000 barrels a day above the level during the 3rd quarter of 1952.

CMP SUSPENSION ORDER AGAINST DALLAS FIRM

The National Production Authority, Department of Commerce, announces that NPA Hearing Commissioner H. Bascom Thomas in Dallas, Texas, has issued a suspension order barring Herbert S. Jack, Sr., who does business in that city under the name of the Dayton Irrigation Systems of Dallas, from acquiring or disposing of all controlled materials for the duration of the Defense Production Act.

This marked the second time in a little more than a week that the National Production Authority has taken such drastic action against violators of NPA regulations. On August 27, NPA Hearing Commissioner Robert J. Farley directed that the Texas Lawn Sprinkler Co. of Dallas, Inc., be prohibited from using any controlled materials for as long as the Defense Production Act remains in effect. He found that the company has illegally used about 125,000 feet of copper tubing between April 16 and October 31, 1951. After a hearing on the charges against Herbert S. Jack, Sr., Hearing Commissioner Thomas found that the respondent had unlawfully used copper pipe and tubing for the installation of lawn sprinkler systems.

ALLOY MATERIAL PUT ON THREE-MONTH BASIS

Authorization for the purchase and use of all allocated alloying materials will be issued on a three months' instead of a monthly basis, beginning with October 1952, the National Production Authority has announced.

The new process was explained to melters and processors NPA states, pointing out that applications should be made on form NPAF-114, and that all other reporting provisions of Order M-80 would remain in force for the present.

NPA explained further that purchases will be limited to not more than 35% in any one of the months indicated on the form, and that not more than 100% of the total quantity requested will be authorized for the three-month period. Carry-over provisions of Order M-80 will continue to apply.

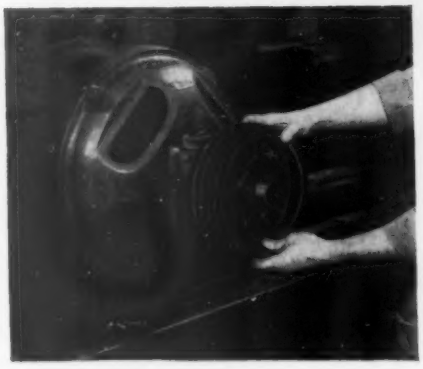
A Maintenance Chief shows why he prefers two-piece QD design



1. "WE'VE STANDARDIZED ON THEM" says this maintenance chief about the Worthington QD sheave. Yes, the millwrights in his plant prefer the two-piece design of the QD sheave with the exclusive features that permit holding the hub on the shaft in a predetermined position and provide for locking the key to prevent drifting. See how easy it is to install QD hubs and sheaves in the pictures below.



2. "IT'S THE LIGHT WEIGHT OF THE QD HUB THAT MAKES INSTALLATION EASY." Without sheave rim obstructions, that easy-to-handle QD hub can be fitted to *oversize* or *undersize* shafts using a wedge for oversize fits. The QD hub is held in a predetermined position on the shaft when the flange cap screw is tightened. Drifting of the key is prevented by tightening of a flange set screw—another exclusive feature with the Worthington QD. And, of course, the QD hub comes off as easily as it goes on.



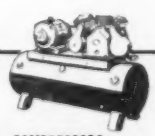
3. "HERE'S WHERE WE REALLY SAVE TIME AND TROUBLE." No juggling of a heavy rim and hub assembly to get it on a shaft with close-tolerance fits. The rim—with its large taper bore opening—slips easily over the small end of the taper QD hub—like threading a needle with a very *large* eye! A tight press-fit is assured as heavy pull-up bolts are tightened. There's no doubt about it—the friction-cone fit of the Worthington QD hub and rim grips the shaft tighter than any other sheave.



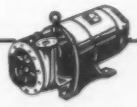
4. "ONCE ALIGNED, IT NEVER NEED BE RE-ALIGNED." That's a basic advantage with the QD, Mr. Maintenance Chief. Men like you know that the rim is easily removed using the heavy pull-up bolts as jack screws. If a speed change is called for, another size sheave can be slipped on the QD hub without disturbing alignment. If the QD hub is removed from the shaft for unit maintenance, it's easily positioned and held in place through the flange cap screw on re-assembly.

Worthington's complete line of Multi-V-Drives includes QD sheaves in all sizes, the QD juniors for fractional horsepower drives, and Worthington-Goodyear V-belts. *And you can get them fast!* Your distributor has a *complete* stock backed by the largest factory stocks you'll find anywhere. Send today for more information in Worthington Bulletin V-1400-B7F. Worthington Corporation, Multi-V-Drive Sales Division, Buffalo, N. Y.

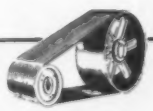
MV.2.1



COMPRESSORS: AIR-COOLED, WATER-COOLED



PUMPS: CENTRIFUGAL, ROTARY, STEAM, POWER



MULTI-V-DRIVES: QD SHEAVES AND V-BELTS



ALLSPEED DRIVES: WORTHINGTON ALLSPEED

WORTHINGTON

Multi-V-Drives

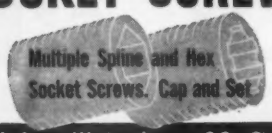
Buy these Worthington standard products from your local distributor

Frequent Take-apart is easy for this Maintenance Man





BRISTOL'S SOCKET SCREWS



THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

FLUORESCENT TUBE DISPOSAL MADE LESS HAZARDOUS

Fluorescent tube disposal has been made less hazardous at the Pearl Harbor Naval Shipyard with the development of a powered tube breaker fitted with a conical base by which refuse can be funneled into a steel drum. Weights swinging from a fan-motor-driven shaft pulverize the tubes as they are pushed into the breaker, and four sprinkler nozzles settle phosphorous particles and flush them into the drum. About 230 4-foot tubes can be broken into one 55 gallon drum, after which it is sealed and buried. The tube breaker is self-cleaning, eliminating any chance of cuts and scratches. Further details about this device are available from the Navy Technical Press, Office of Information, Navy Department, Washington 25, D. C.

DEVELOP TECHNIQUE FOR BUTT WELDING THIN SS

Butt welding of very thin stainless steel is possible through use of a condenser discharge technique perfected by workers at the Naval Ordnance Laboratory, White Oak, Maryland. Electrical energy stored in a bank of capacitors is discharged through transformers into the weld, in periods ranging from 0.001 to 0.010 seconds. With this technique it is possible to weld T and I beams with flanges 0.135 inches wide and 0.0083 inches thick, with web 0.25 inches wide and 0.0077 inches thick. Details of the process are available upon request to the Navy Technical Press, Office of Information, Navy Department, Washington 25, D. C.

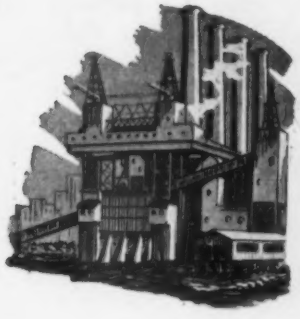
ANNOUNCE FINISHED INVESTMENT CASTING SERVICE

A finished precision investment casting service, supplying castings complete to print, is announced by the Hitchiner Products Corp., West Hartford, Conn., which was created primarily to finish the castings of the Hitchiner Manufacturing Co., Inc., of Milford, N. H. Hitchiner Products has organized a selected group of job shops to perform the secondary operations on Hitchiner castings. It is stated that the service will eliminate the excessive costs of sub-contracting and handling, by making one company responsible for supplying the finished castings.

According to A. Fred Hitchiner, company president, common to most casting buyers is the problem of finishing castings. While the precision investment casting process produces intricate parts to reasonably close tolerance, it cannot meet all of today's exacting requirements and additional machining is often necessary. And, because the finishing operations are so varied, few foundries are equipped with the necessary machinery for the secondary operations. Therefore the customer must locate sources to handle the finishing work.

UNSURPASSED

in the Power Field





W-S FORGED STEEL FITTINGS

Screw-End and Socket-Weld Types

Since Watson-Stillman engineers first developed their special line of forged steel fittings to meet the service conditions of the Power Field, the W-S double-diamond trade-marked fitting has been identified with longer, more dependable life and lowest per-year cost in all phases of the industry's operations.

Precision-machined from solid drop-forged steel bodies, Watson-Stillman fittings are much less subject to unscheduled outages than fittings made from other materials or by other methods of fabrication. Being stronger, they are much smaller and lighter . . . bringing economies in weight and space all the way down the line. Their denser, tougher metallic structure is more resistant to corrosion, vibration, shock, and all types of stresses—including internal pressure and creep—than other types.

Yes, there are many reasons why W-S double-diamond fittings are preferred by *all* industries. Want more information? See your Watson-Stillman distributor or write direct.



• Stronger • Smaller • Lighter • Tighter
• More Uniform • Lower Service Cost

SOLD THROUGH LEADING DISTRIBUTORS . . . EVERYWHERE

9-M-4

WATSON-STILLMAN
ESTABLISHED 1848

DISTRIBUTOR PRODUCTS DIVISION
ROSELLE, NEW JERSEY

Designers and Manufacturers of Forged Steel Fittings, Hand Pumps, Jacks, Wire Rope Shears, Pipe Benders and Hydraulic Equipment

NO!



Here, conventional U-Bolt clips are properly applied but rope is distorted and subject to life-shortening strains under load.

NO!

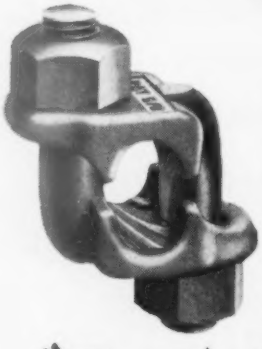


Inexperienced workmen can easily put conventional U-Bolt clips on incorrectly with saddles not on load-line. Result: Weakened rope — risk of accidents.

It CAN'T Go On Wrong

Both halves of the Laughlin Safety "Fist Grip"* clip are identical. There is no wrong way. The most careless workman can't put 'em on wrong (unless he forgets to tighten the nuts). And they're not only safer and practically foolproof, but they're a darn sight easier to use.

Here's why:



Nuts are out in the open, can be tightened with any wrench, and don't have to be "inched around."

Bolt ends are shorter and don't get battered or bent. Nuts are always easy to remove when clip is to be re-used.

No crushed rope ends under "Fist-Grips" to cut off. Rope saved.

Fewer clips are required in many installations, so there is less work to do.

"Fist-Grip" Clips are just one example of many LAUGHLIN EXCLUSIVES in design, safety and quality that make Laughlin your best buy in wire rope and chain fittings.

Look for the trademark *to be sure*

THE THOMAS LAUGHLIN COMPANY
104 FORE ST., PORTLAND, MAINE

LAUGHLIN

THE MOST COMPLETE LINE OF WIRE ROPE AND CHAIN FITTINGS

*Patented, T.M. Reg.

GROUND-LEVEL MAINTENANCE OF POLE-TOP LAMPS

Pole-top unit incorporating disconnecting and lowering hanger mechanism, developed by Thompson Electric Co., 1149 Power Avenue, Cleveland, Ohio, makes possible the safe, efficient and economical maintenance of lights mounted on new standard metal poles of any height. And of equal importance is the fact that greater mounting heights are feasible because maintenance is no longer a problem. The new pole-top hanger assembly eliminates the need for costly service equipment for such maintenance, since the maintenance man works at ground level with a "dead" fixture, and there are no climbing or electrical hazards. The live contacts are at the top of the pole.



The need for special equipment for maintenance of lamps is eliminated

The new unit includes a pole-top fitting complete with self-contained pulley, a divided mast-arm, stainless steel operating cable, and a mast-arm and fitting. The mast-arm, a high-strength aluminum alloy extrusion, contains a Y-shaped partition for both increased stability and separation of the movable operating cable from the electrical wiring.

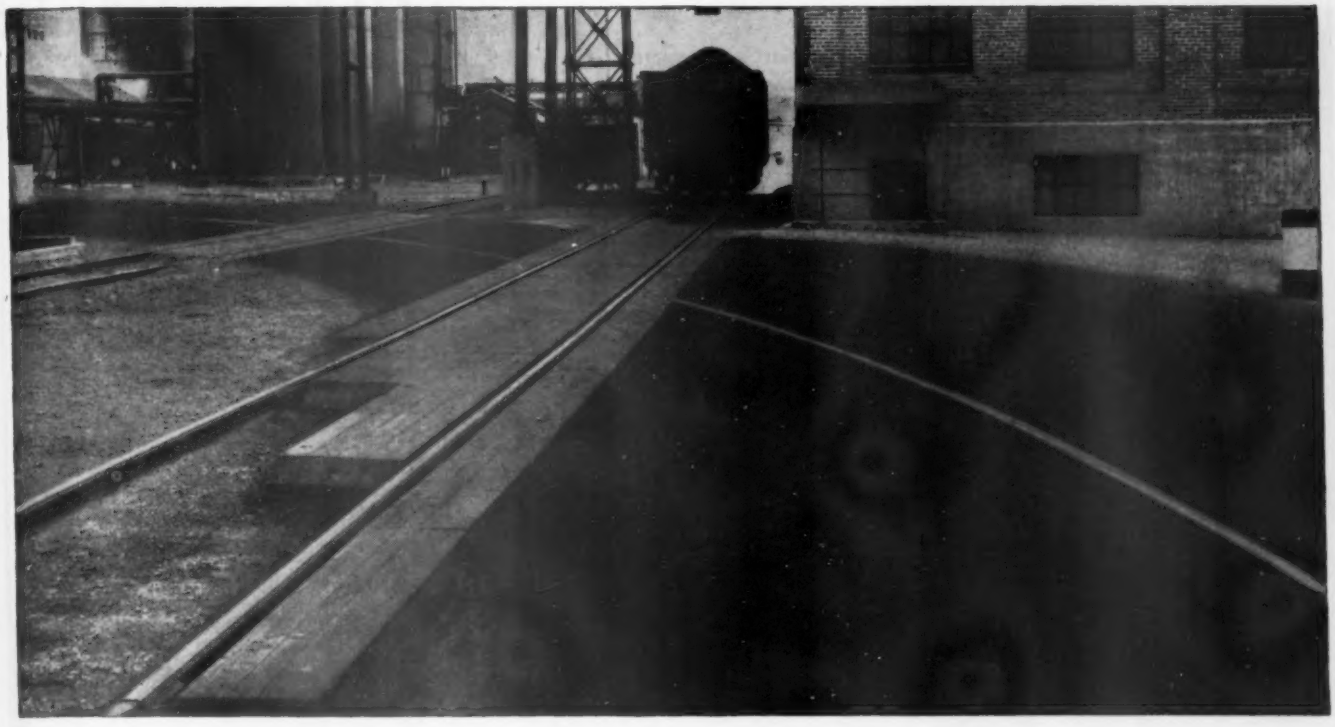
The pole-top hanger can be adapted to new standard metal poles by means of a fabricated tenon insert in the top of the pole. Poles equipped with this disconnecting and lowering device require a hand-hole, complete with pulley assembly, at the bottom for access to the operating cable.

The Thompson pole-top unit is available in either single or double arm models. Assemblies are also available for wooden pole or wall bracket mountings.

AMERICAN NATIONAL PIPE THREADS

The Eastern Machine Screw Corporation, New Haven 6, Conn., has made available a bulletin entitled "American National Pipe Threads—Designations and Differences in Specifications". The publication deals not only with different types of Taper Pipe Threads, Straight Pipe Threads and their purposes but also gives the proper designation letters by which such threads can be specified. The purpose of the publication is to clear up many misunderstandings concerning Pipe Threads of all kinds.

They save you money...



KOPPERS PANEL CROSSINGS

● There are good reasons why Koppers Creosoted Grade Crossings for plant railroad tracks are preferred by purchasing agents who are economy-conscious—

THEY LAST LONGER. Sturdily built and decay-resistant, Koppers Creosoted Grade Crossings do not sag, spall, "washboard," or disintegrate under heavy wheel load.

THEY ARE EASY TO INSTALL. Individual panels come completely assembled, so that they can be handled and placed by workmen. The assembly is securely fastened to withstand vibration, swelling or shrinking of the wood. And, when the track is worked, assemblies can be removed and replaced, using all the original material.

THEY COST LESS. The ease of installation and maintenance and the exceptionally-strong construction of Koppers Creosoted Grade Crossings mean that, in the long run, they cost materially less.

"Koppers Grade Crossings" is the title of a new folder which you will enjoy reading. It contains technical data and construction details . . . gives you the reasons why Koppers Grade Crossings will save you money. Write for your free copy today.

KOPPERS

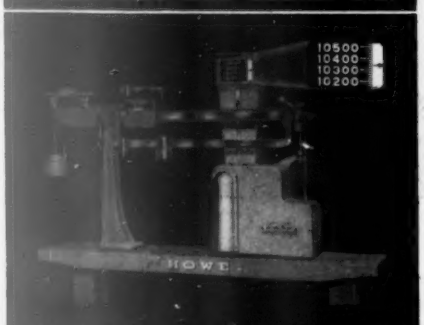
KOPPERS COMPANY, INC. · Pittsburgh 19, Pa.

PRESSURE-TREATED WOOD

HOWE
Scales



Floor Scale with Cabinet Dial



Modernize your beam scales with Howe 77 Weightographs

HOWE
Two and Four Wheel
Hand Trucks



The HOWE SCALE Co.
RUTLAND, VERMONT

Dept. PS. Rutland, Vermont
Please send me:
HOWE CONDENSED SCALE CATALOG NO. 11 ☐
HOWE 77 WEIGHTOGRAPH FOLDER ☐
HOWE HAND TRUCK CATALOG NO. 15-B ☐
Name _____
Title _____
Company _____
Address _____
City State

START WORK ON GAS PIPE LINE LOUISIANA TO OHIO

The Texas Gas Transmission Corporation announces commencement of construction work on the company's new 408-mile, 26-inch natural gas pipe line which is designed to carry 240 million cubic feet more of natural gas a day to over 30 distributing utilities from Louisiana to Ohio. The line will be built in six sections from Bastrop, La., to a point near Louisville, Ky. The project, when completed, will raise the daily delivery capacity along an enlarged 3,000 mile Texas Gas system to 950 million cubic feet.

PLASTIC CONTAINER SALES SHOW INCREASE

Flexible plastic container sales have increased in tonnage volume by about five to 10 percent during the past three months, members of the Flexible Plastic Containers Industry Advisory Committee told the National Production Authority, Department of Commerce.

The unit volume increase is higher than the dollar volume increase compared to conditions existing last June, members said.

Delivery requirements are of an immediate nature with virtually no advance buying for inventory purposes, the Committee told NPA. Customers are working with low inventories and in many cases below practicable minimum working levels. The business outlook for the future is good with the prospect of probable increased demand by the turn of the year.

Several members warned that the present low inventory position of many customers might create temporary artificial shortages in the event a change in world conditions stimulated an effort to build up inventories.

Cellophane and plastic film materials used by the industry such as acetate, Pliofilm, Saran, vinyl films and polyethylene are in ample supply, NPA was told. The production capacity of this industry also is able to meet consumer requirements.

The committee was in agreement with NPA that consideration be given to establishing an expansion goal for cellophane of 425 million pounds annual production by 1956.

SHELL MOLDING TECHNIQUES APPLIED TO STAINLESS STEEL CASTINGS

The Cooper Alloy Foundry Co., Hillside, N.J., announces the publication of an eight-page technical booklet covering the shell molding process for producing stainless steel castings. This illustrated booklet describes in detail the various operations at Cooper Alloy tied up with the production of shell molded stainless steel valves, fittings and castings and discusses such advantages of the process as higher yield, closer tolerances, smoother finish and minimized cleaning problems.

HOT DIP GALVANIZING

...EXCELLENT FACILITIES for PICKLING & OILING

Our Record: Over 50 years of progressive galvanizing service to manufacturers and fabricators of iron and steel products . . . any size or shape, any size order from the smallest to the largest. *Excellent facilities for pickling and oiling.*

"TO ECONOMIZE, GALVANIZE AT ENTERPRISE"

ENTERPRISE GALVANIZING CO.
2519 E. CUMBERLAND STREET
PHILADELPHIA 25, PENNSYLVANIA

PURCHASING Hints

STEEL CASTINGS

Are you dubious about getting good steel castings? Are you on the telephone most of the day, clamoring for delivery? Here's how you can end your worries right now! For steel castings up to 15,000 lbs., most any analysis, call Atlantic Steel Castings Company—Chester 3-4181. When you order from Atlantic, you get quality castings . . . and you can count on Atlantic delivery promises. Atlantic has been producing steel castings since 1915. Why not call today?



ATLANTIC "AXIOMS"

We publish Atlantic "Axioms" at intervals to better acquaint you with the advantages of steel castings in general . . . and in particular, how you may benefit from Atlantic service and facilities. Write for it on your business letterhead, please.

The ATLANTIC STEEL CASTINGS COMPANY
Sixth and Lloyd Streets Chester, Pa.
Chester 3-4181

TO INSURE

STRETCH-FREE STRENGTH

IN BELTING... SPECIFY

DU PONT "CORDURA"!

3-inch belt replaces standard-type leather belt... shows no slippage... no stretch

When you specify belting reinforced with this Du Pont High Tenacity Rayon, you add virtually stretch-free strength to leather's natural grip.

The 3-inch belt pictured at the right was manufactured by the S. R. Sikes Company on a carcass of Du Pont CORDURA* High Tenacity Rayon. With stretch and slippage virtually eliminated, it does the work of the standard-type belt it replaced.

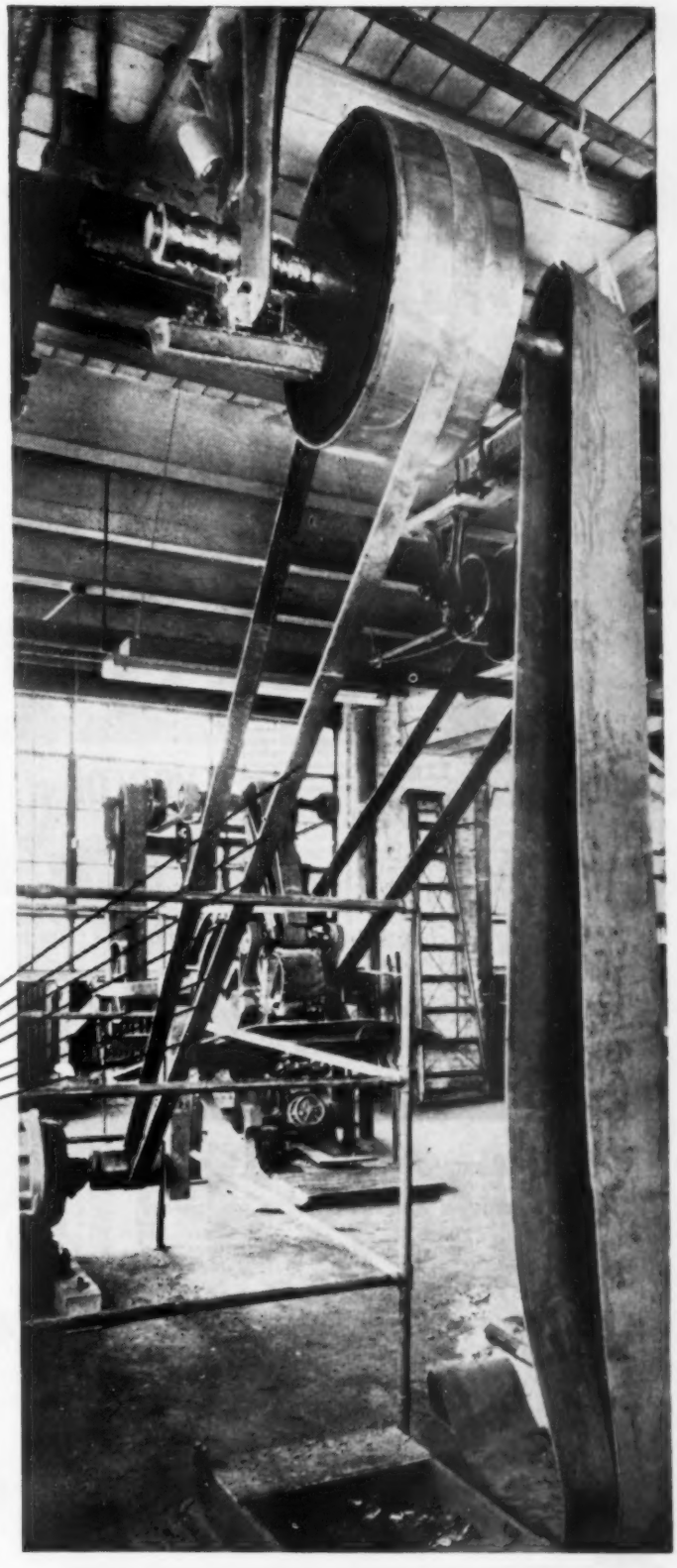
Belts reinforced with "CORDURA" require fewer take-ups, less maintenance and give longer trouble-free service.

"CORDURA" is used today in an ever-widening variety of products . . . the unseen component that makes truck tires stronger and safer at high speeds, hoses lighter yet tougher, conveyor belts more flexible with better troughability.

Find out how "CORDURA" improves the products you use, and may also improve products you make. Send the coupon for *free* booklet "Sinews for Industry."

*REG. U. S. PAT. OFF.





"Cordura"

STRENGTH AT LOW COST

HIGH TENACITY RAYON

DU PONT

REG. U. S. PAT. OFF.

150th Anniversary

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Textile Fibers Department
E. I. du Pont de Nemours & Co. (Inc.)
Room 4421P-5, Wilmington 98, Del.
Please send me the free booklet "Sinews for Industry."

Name_____ Company _____

Address_____

City_____ State_____



HOBBS

EST. 1882

HOBLOK & LOXIT

COTTER PINS

For cotter pins *sure* to meet your job requirements, specify *Hobbs.* Both extended prong and hammer-lock types are available in steel, brass, stainless steel, and monel. Choose the type that's best for *your* production job.

HOBLOK (Hammer-Lock Type) Cotter Pins

Lock themselves when hit with hammer!

ONLY TWO OPERATIONS REQUIRED!





No bending of prongs is necessary. One blow with hammer on head of pin forces shanks to spread and lock themselves! Easy to remove. Saves time! Speeds production!

LOXIT (Extended Prong) Cotter Pins

. . . are designed for easier inserting and handling during regular fastening operations. Modern production facilities assure uniform quality.



HOBBS TANGLE-PROOF LOCK WASHERS



These high quality—low cost fasteners satisfy all government specifications. Available in high carbon steel, stainless steels, silicon and phosphor bronze and all types of platings. Tangle-proof construction makes handling easy. Convenient warehouse locations assure prompt delivery.

Write for Hobbs lock washer and cotter pin price lists today!

HOBBS MANUFACTURING CO., Fastener Division
10 Salisbury St., Worcester 5, Mass.

INSTRUMENT FOR MEASURING HORIZONTAL DEVIATION

An instrument for measuring horizontal deviation has been perfected at the Naval Ordnance Laboratory, White Oak, Md. Titled a "Horizontometer", the device has great sensitivity for small angular changes, yet will record deviation as great as 1800 degrees, or several complete turns. It consists of a float assembly fixed to the shaft of a potentiometer housing held in a container partially filled with fluid. The action of the resulting variable restoring buoyant forces on a lever arm is considered far superior to the old pendulum type of indicator with its low initial restoring torque. Details about the instrument are available from Navy Technical News, Office of Information, Navy Department, Washington 25, D. C.

LOOK! NO SUPPORT FOR MELTING METALS



We have never seen the Indian rope trick, but we have recently witnessed something just as incredible—the melting of aluminum placed between two slightly conical horizontal coils of copper spaced a few inches apart and supplied with energy at 10,000 cycles. A switch was closed and the aluminum literally floated up into space midway between the coils. It began to spin furiously, bobbing slightly as though supported on invisible soft springs. Soon it glowed red, began to soften, and finally turned to a bright liquid. As it did so, it assumed the shape of a rapidly turning toy top. The power shut off, the molten aluminum dropped to a crucible below where it solidified almost instantly.

This bit of levitation melting was the outcome of efforts of research engineers to prepare more nearly pure metals. When a high-temperature metal, such as zirconium, vanadium, molybdenum, or titanium is melted in a crucible, there is inevitably some reaction with the refractory materials. But obviously if the metal could be melted without touching anything, except molecules of gas—as if done in a sufficiently good vacuum—greater purity would be obtained. Thus a metal could be rid of volatile impurities without absorbing others in the process. Also,

(*Please turn to page* 384)

CUTS DUCT INSTALLATION TIME 50% IN AIR CONDITIONING INTERNATIONAL AMPHITHEATRE



Courtesy: Narowetz Heating & Ventilating Company, Chicago, Ill.

Listed and approved by Underwriters' Laboratories

New Cartridge-Powered MODEL 450

REMINGTON STUD DRIVER

Despite a close deadline, ductwork was installed in time for both political conventions by the Narowetz Heating & Ventilating Company of Chicago . . . with the help of the Model 450 Remington Stud Driver. This revolutionary tool's speed and efficiency saved time and cut costs.

The Model 450 is completely self-powered and engineered for safety . . . sets as high as 5 studs per minute in joining steel and wood structural pieces to concrete and steel surfaces.

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., *America's oldest sporting arms manufacturer*. Price for Model 450, complete with rugged steel carrying case—only $119.50. For further information, fill out and mail the coupon.

"If It's Remington—It's Right!"

Remington DUPONT

It's fast, easy and safe to operate the Remington Stud Driver



Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver and close.

Then press loaded Stud Driver firmly against work surface, depress safety lever, and pull trigger. Explosive charge imbeds stud solidly.

Remington Arms Company, Inc.
Industrial Sales Division, Dept. P-10
939 Barnum Ave., Bridgeport 2, Connecticut

I am interested in obtaining detailed information on the Model 450 Remington Stud Driver.

*Name*_____

*Firm*_____

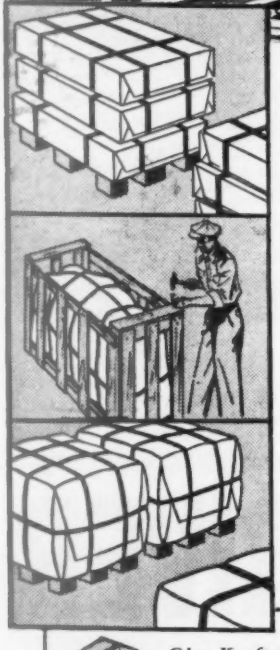
*Position*_____

*Address*_____

*City*_____ *State*_____

NEW PROTECTION





wrap it...ship it!
store it!... **IN GLAS-KRAFT**

GLAS-KRAFT — The smoothest, lightest, most pliable reinforced paper available — keeps your materials, products and equipment safe from weather, wear and the hazards of transit or storage. Strong and tough, it is hard to puncture and difficult to tear. It is the most waterproof reinforced paper on the market.

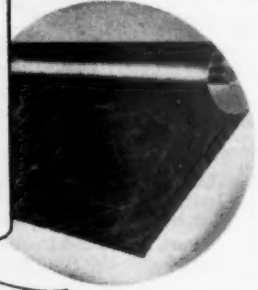
Ask for GLAS-KRAFT . . . *the non-deteriorating, all-purpose paper.* Use it for wrapping and packaging steels and other metals, machinery, paper, leather, textiles, chemicals, cement, wirestock, furniture, etc. Use it for wraps, covers, shrouds, tarpaulins, bag, box, case and barrel liners. Use it for unitized loading of freight cars and trailers. Use it for protecting floors or curing concrete. Use it when you want a paper to perform where others fail.

Glas-Kraft has amazing all-directional strength because it contains up to 315 feet of continuous specially-treated fibers swirled into each square foot. Fibers are waterproof bonded under heat and pressure between two plies of finest specification kraft.

FREE. Send for new Glas-Kraft Folder and Prices today. Glas-Kraft is supplied to the U.S. Government in quantity. It meets JAN-P-125 specifications for barrier wrapping material, Types E-1, E-2, E-3. It also meets Federal Specifications UU-P-147, UU-P-264-A and UU-P-271-B.

OTHER GLAS-KRAFT PRODUCTS

- SEALING TAPE for Carton Closures. Five times stronger than ordinary sealing tape. Will not cut carton. Replaces string, rope, wire and strappings.
- GLAS-TAPE (ungummed). A simple attachment on your present equipment permits you to use *ungummed* Glas-Tape with Darex adhesive. Weatherproofs the manufacturer's joint on your own cartons. Creped outer surface minimizes joint itself. Also available in *gummed* form.



BETTER INDUSTRIAL PAPER PRODUCTS BY

GLAS-KRAFT, INC.

LONSDALE, RHODE ISLAND

TRADE MARK OF GLAS-KRAFT, INC.

(*Continued from page* 382)

alloying agents could be added to the molten metal while still suspended. The induced currents would automatically provide thorough stirring of the molten mass.

So far this process has been applied successfully to laboratory melts involving small samples, and to a very limited number of metals. Nevertheless, float melting has been employed to advantage in research for metals in lamps, electronic tubes, and other high-temperature applications, particularly where it is not necessary to carry the temperature of the metal beyond its melting point. Investigations are being continued with the aim of surmounting such problems as power requirements and physical forces related to the general problem.

2ND-QUALITY STEEL STILL UNDER CMP

To clear any possible confusion which exists with respect to second-quality steel (any steel not prime steel), the National Production Authority has issued a statement emphasizing that controls on second-quality steel have not been relaxed and the material is still subject to all regulations as a CMP material.

The confusion arises from the issuance of CMP-4B Instruction sheet for the 4th quarter, which stated second-quality steel, along with used steel, was not a controlled material.

NPA pointed out that, as a result of the steel strike, it cancelled a program change to the definition of a controlled material contained in CMP Regulation 1, which would have implemented the statement contained in the CMP-4B Instruction Sheet.

NPA added that consumers of second-quality steel must continue to include requirements in their CMP-4B applications and charge purchases to their allotments.

LOW COST ELECTRICAL INSULATION

Two new synthetic products announced by the Naval Research Laboratory, ONR, can be made from domestic materials at low cost, have great potential use as electrical insulation. One—ceramic paper, can be made by conventional paper-making methods from aluminum silicate or similar clay, will withstand temperatures of 2500 deg. F. when combined with bentonite clay, can be machined or drilled. Two—a new material called NaRel, resembles paper, drapes like cloth, is made of fine plastic fibers which are heated and sprayed onto a fine metal screen, then removed. This process eliminates critical paper-making or textile machinery, the product has higher dielectric strength than glass, withstands 250 deg. F., is water repellent. Details are available from Technical News Letter, Magazine & Book Branch, Room 2C765, The Pentagon, Washington, D. C.


HERE ARE SOME APPLICATIONS
WHERE SANDVIK STEELS
ARE STAR PERFORMERS
To find out more about SANDVIK Specialty Steels . . .
See
SANDVIK
AT BOOTH #402
National Metal Exposition
Philadelphia Oct. 20-24th
Featuring
COLD ROLLED, HARDENED, TEMPERED AND BLUE POLISHED SPRING STEEL APPROXIMATELY 1/5 THE THICKNESS OF NEWSPRINT!
One of the things you'll see spotlighted at Sandvik's booth is Sandvik's Super-Precision . . . strip steel, cold rolled to .0006" (6/10,000ths of an inch)!
.0006"
Sandvik cold rolled strip steel is available:
• Precision-rolled to fit your application
• In straight carbon and alloy grades
• In special analyses for specific applications
• In more than 800 stock sizes
• Annealed, unannealed or hardened and tempered
• Polished bright, yellow or blue
SANDVIK STEEL, INC.
111 EIGHTH AVE., N. Y. 11, N. Y., WAtkins 9-7100
230 N. Michigan Ave., Chicago 1, Ill., FRanklin 2-5438
1736 Columbus Rd., Cleveland 13, Ohio, CHerry 1-2303
SANDVIK CANADIAN LTD., P. O. Box 40, Station O, Montreal 9, P. Q.
SANDSTEEL SPRING DIVISION • New York • Industrial Springs
SANDVIK SAW & TOOL DIVISION • New York • Saws and Tools
Sandvik
Quality Steels
55-84



Darnell
CASTERS

It's easy to select the right caster to meet your exact requirements from the Darnell line. There are nearly 4000 models from which to choose. All Darnell Casters and Wheels are pre-tested for efficiency and durability—you are assured a long life of satisfactory service.

FREE
Manual

DARNELL CORP., LTD.
DOWNEY, (Los Angeles County) CALIF.

60 Walker Street, New York 13, N.Y.
36 North Clinton, Chicago 6, Illinois

New Ceramic Fiber Substitute for Asbestos

Does Not Soften at Temperatures Approaching 3000 Deg. F. As Blown the Fiber Weighs About Two Pounds Per Cubic Foot

A new manmade ceramic fiber, possessing unusual resistance to heat and unusual electrical properties, named "Fiberfrax", which is said to promise to ease the pinch on asbestos, was recently announced by the Carborundum Company, Niagara Falls, N. Y.



Two lbs. of Fiberfrax packed to 6 lb. per cu. ft. density, fill the same volume as 14.6 lbs. of refractory insulating material, and furnish the same insulating efficiency of 20.9 lbs. of high grade refractory insulating brick.

According to President Clinton F. Robinson, "Fiberfrax" refractory fiber can be used immeditaely in combination, or as a replacement for asbestos in many applications. The new fiber is made at extremely high temperatures of inert "earthy" materials and possesses great heat resistance. It will not lose its properties at temperatures up to 2,300 F, and does not soften at temperatures approaching 3,000 deg. F.



When solid aluminum silicate (right) is melted and subjected to a blast of air, fluffy cotton-like "Fiberfrax" (left) is produced. For samples shown the weights are equivalent.

Fiberfrax is made by melting aluminum oxide and silica in an electric furnace, then subjecting a stream of the molten material to a blast of air. The result is a fluffy, white, cotton-like mass of extremely fine fibers up to three inches in length and having an average thickness of about one-twenty-fifth that of a human hair. As blown, the fiber weighs about two pounds per cubic foot. Carborundum states it may eventually be processed into felted blankets, firmly bonded batts, tape, or paper-like forms.

In addition to its high thermal properties, Fiberfrax possesses a number of other values not usually found in combination in manmade fibers or refractory materials. Carborundum states that the fineness and random arrangement of fibers make the material practical as a super-filter for gases and liquids in chemical operations; its resilience makes it suitable for vibration dampening, and as a packing material for expansion joints.

As a reinforcing agent, it has potential applications in electrical insulators, in high-strength low pressure plastic laminates, and as a replacement for asbestos in brake linings subjected to heavy loadings. Also, the fineness of the fiber makes it a practical material for the manufacture of thermal and electrically resistant papers for high temperature service.

The company has a pilot plant production of 30 tons a month. Plant expansion is now under way. In addition to the new product research on Fiberfrax, Carborundum has a subsidiary company, Carborundum Metals, engaged in developing a process for producing zirconium metal from zirconium silicate.

◆ ◆ ◆

NO DANGER OF COPPER SHORTAGE OVER IMMEDIATE YEARS

By Bertram B. Caddle, Secretary
Copper & Brass Research Association

Because of the shortage of copper during the latter part of 1951 the National Production Authority and other governmental agencies urged various manufacturers through Industry Advisory Committees and publicity releases to substitute aluminum and other metals for the oldest of the metals of commerce-Copper. From the invention of the first automobile 'til now copper has been used exclusively for radiators and other important parts of the horseless carriage.

The confusion caused by these governmental rumors of a great copper shortage resulted in the manufacturers of some automobiles to substitute aluminum for copper radiators. Within a few months of service these radiators failed and it was necessary for the manufacturers of the automobile to replace the radiators with copper at a cost of millions of dollars. Despite this expense the substitutions were made, many of the cars having been exported to other countries.

To clarify the confusion caused by the rumors of a copper shortage which some government authorities predicted would extend over a period of years the Copper & Brass Research Association devoted the May, 1952, issue of the Copper & Brass Bulletin to pointing out the true facts—that there was no danger of a great copper shortage over the immediate years to come.

The August issue of the Copper & Brass Bulletin features copper radiators now once again being exclusively used by all automotive and truck manufacturers. In the foreword the Bulletin says:

(*Please turn to page* 392)

HERE'S WHY

metal hose purchasing is simplified when you select

CMH

Flexible Metal Hose



1. ALL YOUR NEEDS FROM A SINGLE SOURCE

The CMH line of flexible metal hose products is the most complete offered by a single manufacturer . . . a single source for a broad range of products.

2. TIME-SAVING CONVENIENT DISTRIBUTION

A nationwide network of stocking distributors backed by Flexonics Corporation field men assures prompt service wherever you are.

3. TOP QUALITY ACCEPTED PRODUCTS

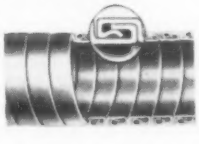
Over fifty years manufacturing experience plus successful use in almost every industry stands behind all CMH Flexible Metal Hose Products.

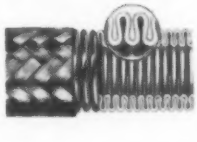
4. MULTIPLE PLANT OPERATION

Six Flexonics plants plus a company owned assembly warehouse offer many of the advantages of parallel sources of supply through a single company.

In the complete CMH line are all types and sizes of flexible metal hose including square locked, ball bearing, interlocked and corrugated in a wide variety of materials. Assemblies for special services are also available. Ask your Flexonics distributor for a CMH hose catalog or write direct.







Write for the name of your Flexonics distributor or look for his name in the pages of your classified telephone directory. We're sure a trial order will convince you of the value of CMH service and convenience.

Flexon identifies CMH products that have served industry for over 50 years.

CHICAGO METAL HOSE Division

Flexonics Corporation

1310 S. Third Avenue · Maywood, Illinois

Manufacturers of Convoluted and Corrugated Flexible Metal Hose in a Variety of Metals · Expansion Joints for Piping Systems · Stainless Steel and Brass Bellows · Flexible Metal Conduit and Armor · Assemblies of These Components

In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

FOR MALLEABLE IRON CASTINGS

. . . here are 3 ways to pick your source

1. ON SERVICE
2. ON PRICE
3. ON QUALITY

Which is most important to you? Perhaps (like most of our customers) — all three! Over a period of 50 years we have found this 3-point policy has satisfied many types of buyers in a wide range of industries.

At Moline Iron Works are the skill and capacity to provide malleable castings from one ounce to over one hundred pounds. In addition to foundry production, we are also completely equipped with modern facilities for machining, processing, fabricating and finishing according to your specifications.

And so we offer these attributes of Moline Iron Works to you. We should like to do business with you and invite your specifications for quotation.

Among our customers are these industries:

FARM IMPLEMENTS
RAILROAD CARS
AUTOMOBILES
WASHING MACHINES
GARDEN TOOLS
ELECTRICAL EQUIPMENT
INDUSTRIAL MACHINES
BARN EQUIPMENT
AND MANY OTHERS

MOLINE IRON WORKS
Moline, Illinois, U.S.A.

MOLINE IRON WORKS Since 1878 MOLINE, ILLINOIS U.S.A.
SEVENTY YEARS OF SERVICE



Let Potter & Brumfield work out the specifications for your "most exacting" military and industrial relay requirements

Twenty years of highly specialized technical knowledge acquired in the design and production of relays and similar electro-mechanical assemblies enable P & B to understand today's relay problems—come up with the quickest, most practical, *and most economical* solution.

Complete research, development, type testing, and manufacturing facilities are at your service. Models and pilot runs can be completed quickly and at very reasonable cost. Production capacity—10,000 relays per day. Send specifications for samples, recommendations and quotations. Catalog available on request.

P & B standard relays are available at your electronic parts distributor

Potter & Brumfield
PRINCETON, INDIANA
Export: 13 E. 40th St., N. Y., N. Y.

Sales Offices in Principal U.S. and Canadian Cities

NEW HOSE RESISTS CONCENTRATED ORGANIC AND INORGANIC ACIDS

New rubber hose developed by the Hewitt Rubber Divn. of Hewitt-Robbins, Inc., 666 Glenbrook Road, Stamford, Conn., is said to give promise of resisting concentrated organic and inorganic acids. The company states that while previous recommendations on the use of conveying acids were limited to the following concentrations—sulfuric 50%, Nitric 10%, acetic 10%, hydrochloric 80% and hydrofluoric 50%, it is believed that with the new compound these percentages can be raised to 100% concentrations except on nitric and sulfuric for which recommended concentrations are 75% for nitric and 98% for sulfuric. The new compouned will also withstand the action of fuming nitric over 86% if used for intermittent service. The compound is also suitable for chlorine and saturated chlorine water service.

PLASTIC BOAT PROVES SUPERIOR TO WOODEN CRAFT

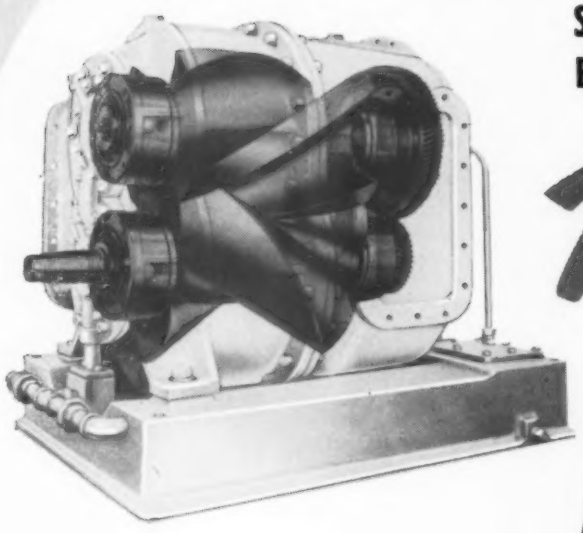


An unusually compelling performance story on boats has just been issued by the Army's Transportation, Research and Development Station at Fort Eustis, Va.

In just about every essential—speed, weight, capacity, strength, resistance to damage, ease of repair and resistance to rot and corrosion—a 26-foot plastic utility boat developed by the Station has proved markedly better than the conventional-type wooden craft against which it was pitted in a series of punishing parallel tests. The plastic yawl was molded for the Army by Cape Cod Shipbuilding Company, Wareham, Mass., using American Cyanamid Company's laminac resin reinforced with fiberglas.

When empty, the plastic boat proved 30% faster than its wooden counterpart. Even with a 30% greater load, it outdistanced the wooden one. The greater load for an equally-sized boat is made possible by the inherent lightness of the laminac-fiberglas combination, which resulted in a 1600 lb. reduction in displacement. It was also reported that maneuverability is greater under practically all conditions.

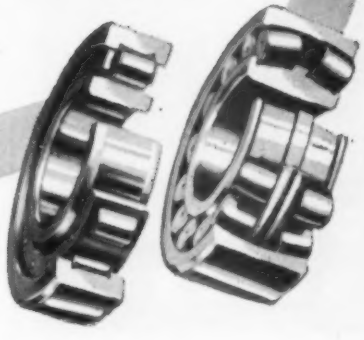
(*Please turn to page* 394)



STANDARDAIRE BLOWER DESIGN

Plus

SKF BEARING ENGINEERING



Every so often, a manufacturer has a chance to *prove* his wisdom in the selection of the product components he specifies.

For example, Read Standard Corporation was able to obtain performance data on one of their "Standardaire" Blowers which had operated 24 hours a day, for 15 months, at 2200 rpm.

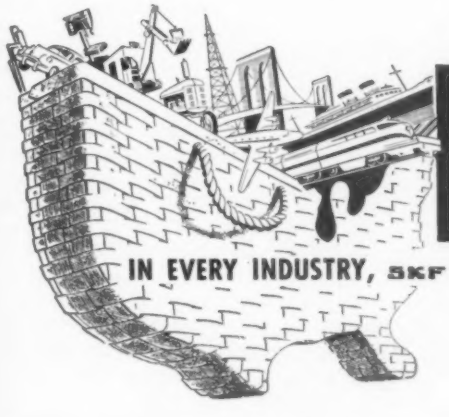
In other figures, that's about one and a half billion revolutions—representing many years' service for typical blower installations.

Even after the hard, difficult service, this blower and bearings were found to be in excellent condition when dismantled and inspected in the presence of Read Standard customer's representative.

Performance like this is proof of sound *design*—proof, too, that the designers selected the **best** available materials and component parts . . .' among these were SKF Bearings.

Here we quote from the "Standardaire" Blower performance report: "Anti-friction bearings in good condition." They were SKF Cylindrical, and Spherical Roller Bearings, designed into the gate rotor shaft and main rotor shaft as shown in the illustration.





IN EVERY INDUSTRY, SKF Puts The Right Bearing In The Right Place

SKF®
BALL AND ROLLER BEARINGS

Remember—if you want design assistance and engineering help when you're laying in bearings, you can get it from SKF field or home office men who know the best ways to do the job in *every* industry. **SKF INDUSTRIES, INC.,** PHILADELPHIA 32, PA.—*manufacturers of* **SKF** *and* HESS-BRIGHT *bearings.*

7323

Compact
Complete



Compiled for the
INDUSTRIAL
BUYER

Yes, the CONOVER-MAST PURCHASING DIRECTORY is compiled especially for the industrial buyer—only listings and product facts on the machinery, parts, supplies, and materials needed by industry. All nonindustrial listings and advertisements are rigidly excluded—that's why it's so compact, easy to keep handy and use, yet complete. Besides, it has 35 pages of general information and tables for the buyer which he will not find in other directories.

Use the CONOVER-MAST PURCHASING DIRECTORY—you'll soon find that the complete cross references make it the easiest and quickest way to locate the suppliers of any item you buy. The more you use it, the better you'll like it.

The Most Convenient Industrial Buyers' Guide for Production, Purchasing, and Engineering Executives

Conover-Mast
PURCHASING
DIRECTORY
737 North Michigan Ave., Chicago 11, Ill.

High Accident Rate Features Operations of Small Companies

Have Two to Five Times as Many Accidents Per Employee as Large Companies

Small companies have from two to five times as many accidents per employee as large companies, A. M. Baltzer, director of the small business and associations program of the National Safety Council, stated at the fall meeting of the American Society of Mechanical Engineers in Chicago. Asserting that safety is "good business" for the small business man, he described ways in which help could be obtained from professional societies and trade associations to carry out a safety program.

"In spite of impressive reductions made by some large companies, the overall occupational accident rate is not being reduced proportionately because small companies have approximately two and one-half times as many injuries as large companies," he pointed out.

"Established safety programs more than pay their way in reduced insurance rates, but they bring the added benefits of increased production, improved employee relations, and increased public good will. It is significant that companies and associations with long standing, successful safety programs, have found them so worth-while that their activities tend to increase, even though the accident rate approaches the irreducible minimum.

Small Companies Need Help

"Small companies usually require no trained professional safety engineer, but this means that other supervisors and executives must take on the responsibility for accident prevention in addition to their other duties. The mechanical engineer is in an ideal position to promote accident prevention, because his training is closest to that required by a professional safety engineer.

"Many small companies rely upon their trade association for advice and help in highly specialized fields. In like manner, these companies should rely upon professional societies, such as the ASME, for guidance.

"The mechanical engineer or machine designer is best qualified to guard the power transmission apparatus and points of machine operation. Since approximately 25 percent of all industrial accidents are due to handling materials, the mechanical engineer has an excellent opportunity to devise better and safer ways of handling material, whether by conveyor, power truck, crane or hoist.

National Safety Council Aids

"The increased use of welding and cutting equipment is accompanied by both fire and accident hazards. Such a simple thing as anchoring welding cylinders to prevent them from falling over is often overlooked by the welder or maintenance man. A similar example could be drawn in the setting up of new machinery, laying out new operations, and using solvents for degreasing and cutting" he said.

In offering the assistance of the National Safety Council's new program to small companies, Mr. Baltzer said that it worked through trade associations, local safety councils, insurance companies, and professional societies. Many materials and services are offered, without obligation, to both members and non-members of the Council.

(*Continued from page* 386)

"One of the most distinctive features on early automobiles was the Brass tank on top of the radiator. The proud car owner kept this part polished brightly, together with the huge Brass headlights and other Brass trim. For those who remember, it made a pretty picture to see all of this gleaming Brass against a bright red or blue body on one of the sporty models of the early 1900s.

"Less spectacular in appearance but more utilitarian was the automobile radiator which even in those early days was necessary to cool the engine. As ever more powerful engines were developed for motor cars, the radiators became larger and more efficient; fans and water pumps were added to facilitate the cooling process. Today the automobile radiator is the largest unit made of Copper and Brass in the modern motor car, accounting for about half of the Copper and its alloys in the average car. Approximately 45 pounds of Copper and its alloys are used in the average automobile manufactured in the United States today, trucks contain considerably more.

"Copper was logically chosen for this heat transfer task because it was and continues to be the most efficient conductor of heat among the commercial metals. Copper is exceeded in efficiency of thermal conductivity only by silver which is, of course, extremely uneconomical as well as impractical for making an automobile radiator. Copper is corrosion resistant and readily fabricated."

* * *

BOOK ON PUBLIC RELATIONS

New book on scientific methods of winning public favor, entitled "Effective Public Relations", is published by Prentice-Hall, Inc., 70 Fifth Avenue, New York, N. Y. Authors of the book are Allen Center, public relations director of the Parker Pen Company, and Scott Cutlip, University of Wisconsin professor. The book combines basic theory with a wide variety of tested practical applications among business and nonprofit organizations.



It's new Curtis

MODEL 98 AIR COMPRESSOR
Two Stage Air Cooled 15 and 20 Horse Power

designed to give you **even greater dependability**
lower cost operation
longer life

Features that make the number 98 compressor truly outstanding:

1. Two-Cylinder Compressor — less friction and less oil consumption
2. Vibration Free — smooth operation
3. Self Oiling by positive Centro-ring method
4. Timken Main Bearings — provide easy external adjustment
5. Four section Finned Intercooler — effective cooling between stages
6. Valves readily removable as assembled units
7. Precison Built — assures long life and minimum maintenance
8. Experience backed by 98 years of "Know-How"
9. Also furnished in both base and tank mounted units

Mail coupon for additional information

Other CURTIS Equipment that Increases Plant Efficiency—Reduces Production Costs

Vertical Air Hoists for Low Cost Lifting or Lowering of Materials or Machines





Air Cylinders for Almost Any Pushing, Pulling or Hoisting Operation

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Company
1908 Kienlen Ave., St. Louis 20, Mo.

I am interested in items checked below:

☐ THE NEW MODEL 98 AIR COMPRESSOR ☐ VERTICAL HOISTS ☐ AIR CYLINDERS

Name.....

Firm.....

Street.....

City.....Zone.....State.....

Other Curtis Compressors available in sizes from ¼ to 50 horsepower inclusive.

CURTIS PNEUMATIC MACHINERY DIVISION of Curtis Manufacturing Company

1908 Kienlen Avenue • St. Louis 20, Missouri

-71-



PITTSBURGH'S *Red Stripe* brushes are fast proving themselves superior in the face of government restrictions on pure bristle. *Red Stripe* combines hogs' bristle with scientific Neoceta bristle . . . the bristle designed specifically for painting. Both bristles wear at the same rate . . . your assurance of smoother, neater, faster work on every job, every time!

For the address of the Pittsburgh supplier nearest you, write: PITTSBURGH PLATE GLASS COMPANY, *Brush Div.*, Dept. M-3, 3221 Frederick Ave., Baltimore 29, Md.

FREE—the story of Neoceta—its development, its amazing characteristics. Write to the address above for your free copy of this interesting booklet.



PITTSBURGH
Red Stripe
BRUSHES
BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS
PITTSBURGH PLATE GLASS COMPANY

(*Continued from page* 390)

Destructive tests, made on a measured course off Ft. Eustis, revealed that the over-all strength of the plastic boat is considerably greater than that of the wooden boat. Portions of the plastic boat which were damaged during these tests were easily and satisfactorily repaired by relatively inexperienced personnel.

Unlike wood, the new material is not subject to deterioration from dry-rot and marine organisms.

The boat is 26′ 6″ long, has a beam of 8′ 1″ and a light draft of 2′ 10″. A 68-horsepower Diesel engine powers the craft at a speed of 14 knots, 4 knots faster than the speed specified in the ship builder's contract.

TROLLEYPHONE USES TROLLEY WIRE OR POWER LINE



Each station is equipped [illegible] talk microphone and [illegible]

The Femco Trolleyphone, plug-in model, 2550 series, introduced by the Farmers Engineering & Manufacturing Co., 549 Brushton Ave., Pittsburgh, Pa., for use in mines or mills, takes power from existing trolley wire or power line, either 250 or 550 volts DC. Installation can also be made for 110 or 220 volt AC single or three phase, or from 6 to 40 volt batteries. Along with savings in time and costs and improved teamwork and safety, the systems make for closer control and supervision over far-flung areas.

BOOKLET ON AUTOMATIC GAGING AND SORTING

"High-Speed Automatic Gaging and Sorting" is the title of illustrated booklet issued by the Federal Products Corp., 1144 Eddy St., Providence, R. I., pointing out the practical use and versatility of Automatic Gages of various types including Multi-dimension, Continuous Measuring Gages, "Electricator" gages, Electronic Gages, Machine Control Gages, Multi-Dimension Gages, illustrating the type of gaging for which they are adapted.

In addition to the Dial Indicator or mechanical type of indicating gage, Federal manufactures all types of gaging methods in the mechanical, electrical and air systems, and a long list of special gages. Copy of the booklet "High Speed Automatic Gaging and Sorting", is available on request.

Here's a good connection for you!

STANDARD STEEL WORKS

FLANGES

Those rolled steel flanges you buy for installation on your pressure vessels, on fabricated, flanged piping fittings, and for other uses have a vital bearing on the performance and reliability of the equipment. It's just plain good business to insist on the top-notch quality that will safeguard the reputation of your products!

Providing this high quality is an every-day production aim at Standard Steel Works Division. The flanges start with steel produced in Standard's own open-hearth furnaces—which permits continuous metallurgical control. Forging is done on special machines, by men who have made a career of making fine flanges. Modern heat treating facilities assure stress-free blanks, and develop all desirable properties inherent in the metal. Adequate machine tools expedite turning.

Advantages extend even further. A simple, convenient form, "Dimension Blank for Rolled Steel Flanges" greatly simplifies the job of obtaining quotations. The form can be filled out in a few moments with all the data needed to obtain a price. We will be glad to send you some copies of this form, if you will write.

Standard is big enough to handle almost any job—small enough to make each job a matter of individual concern. We would like to serve you.

NOTICE

DESIGN AND PURCHASING DEPARTMENTS

Carbon, Alloy or Stainless Steel Rolled Pipe Flanges for all types of service are produced by Standard Steel Works in a range of sizes from 18" I.D. to 144" O.D.

Ask for a supply of our forms, "Dimension Blank for Rolled Steel Flanges." All information required for a quotation can be inserted in a few moments. Your inquiries will receive immediate attention.

STANDARDIZE ON STANDARD for



GEAR BLANKS



STEEL CASTINGS



FORGINGS



WELDLESS RINGS



FLANGES

STANDARD STEEL WORKS DIVISION

BURNHAM, MIFFLIN COUNTY, PENNSYLVANIA

-LIMA-HAMILTON



For over 70 years, industry has preferred STAR quality, preferred the blades made of carefully heat-treated, top-quality steel, fabricated on specially designed equipment—all for the sole purpose of delivering fast, economical metal cutting and long blade life.

FOR FAST, ECONOMICAL
Service

STAR Blades are sold only through recognized distributors. You get *fast* service from local distributors' inventories. You get *economical* service because your distributor knows your operations best, he is easy to reach, he is trained by qualified factory representatives to know the answers to your metal cutting—and hundreds of other—problems.

CLEMSON BROS., Inc.
MIDDLETOWN, N. Y., U. S. A.
Makers of Hand and Power Hack Saw Blades, Frames, Metal Cutting Band Saw Blades and Clemson Lawn Machines.

Purchasing At Remington Rand Inc.

(*Continued from page* 81)

the transportation of the household effects of personnel, secures passenger reservations, approves packing and packing changes, and handles the movement of equipment from one plant location to another.

No one plan in its entirety is adaptable to the operations of all companies. Remington Rand is operating under policies and procedures which experience has shown to be desirable. However, we are continuing to search for methods and procedures which will result in more efficient operations and further economies.

X-Ray Gives The Answers On Material Analysis

(*Continued from page* 86)

per second, and comparing the intensity with that of a standard specimen of somewhat similar composition and characteristics.

Accuracy of the quantitative analysis to be expected varies somewhat with the nature of specimen components, but accuracy in the order of ½ of 1% of the element present may be obtained under most favorable circumstances. This accuracy is not to be expected in direct readings on elements of a low order of detectability, or from unusually small specimens, or at limiting percentage ranges. Recent advances in the technique have greatly extended the range of detectability. Under optimum conditions of absorption and sensitivity, detection extends to the *few-parts-per-million* range.

Canada Forges Ahead In Aluminum Production

(*Continued from page* 85)

of any other vital materials—some 450% over 1950.

Present total U. S. production is about two billion pounds. Total U. S. production after all planned expansion will be about three billion pounds—still 25% short of conservatively estimated 1960 peacetime demand.

These estimates do not necessarily mean that there will be a continued shortage of aluminum until and beyond 1960. They are based on a continued expansion in the world economy—a growth in industry and the improvement of world standards of living.

From the standpoint of the purchasing agent, the development of large-scale low cost output of aluminum brings to the fore a competitive material. While logically certain products will invariably be firmly welded to steel, copper, or plastic, the emergence of the light metals heightens the element of competition as between available materials for a large number of uses.

The fact that the producers of the newer metals are highly cost-conscious is effective insurance that prices will be held down—not only the price of aluminum but of the other basic materials with which it competes.

NON-GLASS UNBREAKABLE MIRRORS

Non-glass, unbreakable mirrors are announced by the Flexmir Metallizing Corp., Newark, N. J. The company states that the Flexmir mirrors can be used wherever mirrors are desired and that their reflectability is equal to glass. The new mirrors are one-third the weight of glass, and it is claimed that they will not steam-up or cloud-up in frost and will not distort because of severe changes in temperature. They have withstood a 50-hour salt spray test without peeling, pitting or flaking of the mirror-metal or distortion of the image, and temperatures of 160° and —40°F without distortion.

LEAFLETS ON PRECISION MEASUREMENT AND SAFE WORKING CONDITIONS

Two new leaflets designed to assist small manufacturers—one on "Precision Measurement of Workpieces," and the other on "Reducing Accident Costs Through Safe Working Conditions," are available from the Small Defense Plants Administration, 1337 E. St., N. W., Washington, D. C. The Precision Measurement leaflet covers the following subjects: Measuring flat surfaces, measuring cylindrical surfaces, mechanical comparators, optical or contour projectors, special instruments, measuring short lengths, measuring tapered workpieces, measuring screw threads, measuring angles, measuring squareness of workpieces, measuring gear teeth, the importance of gaging, and where and how to secure standard gages.

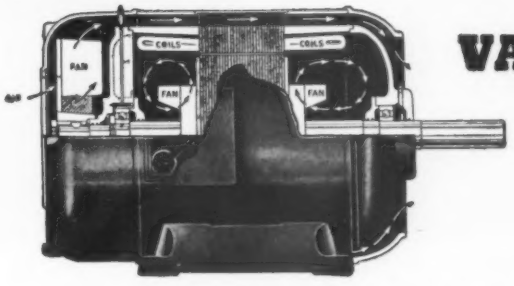
The leaflet on Reducing Accident Costs discusses plant inspection, planning layout, housekeeping, maintenance of plant, equipment and machinery, handling materials, electrical hazards, and safeguarding machinery.

Copies are also available from SDPA field offices in Boston, New York, Philadelphia, Richmond, Cleveland, Detroit, Minneapolis, Chicago, Kansas City, Denver, Dallas, Atlanta, San Francisco, Los Angeles and Seattle.

AIR COOLED

POWER ECONOMY

at its money-saving best!



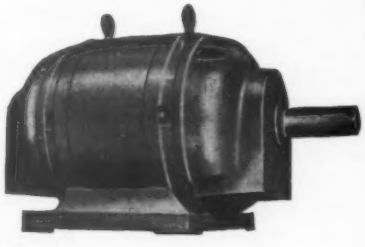
VALLEY Ball Bearing MOTORS

The newest and most successful development in air cooled motors. Totally enclosed, constant speed, continuous duty, squirrel cage induction, high torque, low starting current.

- **COOL RUNNING**—for continuous service, in high temperatures.
- **ENCLOSED BALL BEARINGS**—afford protection against harmful dust and grit—reduces friction 75%—cuts power costs.
- **OVERLOAD CAPACITY**—can handle any power load emergency—without damage to the motor.

SEMI-ENCLOSED—DRIP AND SPLASH PROOF!

Built for economical, continuous service in high temperatures. Sizes—½ to 75 h. p. for wide adaptability.



VALLEY
ELECTRIC CORPORATION
4221 Forest Park Blvd. • St. Louis 8, Mo.

Write For Descriptive Literature.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of Purchasing, published monthly at Orange, Conn. for October 1, 1952.
State of New York }
County of New York } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared A. M. Morse, Jr., who, having been duly sworn according to law, deposed and says that he is the Publisher of the magazine "Purchasing" and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537 Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

B. P. Mast, Chairman of the Board, 205 East 42nd Street, New York City 17; Harvey Conover, President and Treasurer, 205 East 42nd Street, New York City 17; A. M. Morse, Jr., Publisher, 205 East 42nd Street, New York City 17; Stuart Heinritz, Editor, 205 East 42nd Street, New York City 17.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

Peeaye Inc., 205 East 42nd Street, New York City 17; Conover-Mast Publications Inc., 205 East 42nd Street, New York City 17.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and his affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is. . . . (This information is required from daily publications only.)

A. M. MORSE, JR.
(Signature of Publisher)

Sworn to and subscribed before me this 17th day of September, 1952,
LEO F. HAGGERTY
Notary Public
(My commission expires March 30, 1953.)

the A-B-C of M-S-T

A ALWAYS MAKES POSSIBLE
B BETTER PRODUCTS
C AT LOWER COST

Michigan
Electric Resistance
WELDED
STEEL TUBING

A Quality Product



ROUND
⅜" to 4" O. D. 9 to 22 gauge
SQUARE - RECTANGULAR
½" to 2" 20 gauge, 1" to 2¼", 14, 16, 18 gauge
Carbon 1010 to 1025
Can be Bent,
FLANGED, EXPANDED, TAPERED, DEPRESS BEADED, EXPAND BEADED, ROLLED, EXTERNAL UPSET, INTERNAL UPSET, SPUN CLOSED, FORGED, BEVEL FLANGED, FLATTENED, SWAGED FLUTED.

Vacuum Cleaner Handle

An excellent example of how the use of welded steel tubing simplifies assembly of parts, cuts down costs, is the cleaner handle made by Michigan for manufacturers of vacuum cleaners.

The handle is shipped by Michigan ready for chrome finishing and assembly to the vacuum cleaner. Stampings for the cord holders are welded to the tubing, an elongated hole punched for the interior wire cord and tumbler switch. The surface finish of the cold rolled steel tubing, as processed by Michigan, is suitable for polishing and chrome plating.

No matter what you manufacture, Michigan engineers will be pleased to consult with you concerning an application of welded steel tubing to improve your product and lower production costs.

RESISTANCE WELDED STEEL TUBING
Michigan **STEEL TUBE** *PRODUCTS CO.*
THE OLDEST NAME IN ELECTRIC
More than 35 Years in the Business
9450 BUFFALO STREET • DETROIT 12, MICHIGAN
FACTORIES: DETROIT, MICHIGAN—SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Detroit, Chicago, St. Louis, Milwaukee, Indianapolis and Minneapolis—Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland Co., Dayton, Ohio—Dirks & Company, Portland, Oregon—James J. Shannon, Milton, Mass.—Service Steel Co., Los Angeles, Calif.—Hugh Davis, Jr., Sewickley, Pa.—Strong, Carlisle & Hammond Co., Cleveland, Ohio—Globe Supply Co., Denver, Colorado—W. A. McMichaels Co., Upper Darby, Pa.—A. J. Fitzgibbons Co., Buffalo, N. Y.—Henry E. Clark & Co., Houston, Texas—J. B. Beaird Co., Inc., Shreveport, La.

LETTERS . . .

PURCHASE FOR PROFIT

I am struck by the theme reflected on the front cover of the May issue of that magazine I wait for every month —"Purchase for Profit". I like the idea. It seems to me you have pretty nearly the same punch line in your February 1945 issue. At least you are persistent, and truthfully I think that theme is a challenge and an opportunity for everybody in Purchasing. I hope we can all sell the idea throughout industry.

E. P. Scully, Director of Purchases
National Pneumatic Co., Inc.
Boston, Mass

● Mr. Scully is one of the pioneers in value analysis applied to purchasing. The theme of his guest editorial of 7½ years ago was "Purchasing for Profit", long before this idea had the wide acceptance in the purchasing field that it enjoys today, and he was successfully putting these methods and standards of performance into practice long before most of the modern techniques were developed. His consistent and energetic advocacy of profit-purchasing, and of the "How to buy" emphasis in purchasing education, have greatly and constructively influenced the direction and progress of industrial purchasing.—Ed.

B & O ON RIGHT TRACK

The article "What the P.A. Expects of the Coal Salesman" in the June issue of PURCHASING is right to the point and furnishes many valuable tips and information to the coal salesman. In fact, many of the things stated by Mr. Dennis are the very ones we have been drilling into our salesmen of rail transportation for some years. This encourages me to feel that we have been on the right track.

Lloyd W. Baker
Freight Traffic Mgr.
B. & O. Railroad Co.
Baltimore, Md.

MAINTENANCE PRICE INDEX

I am interested in obtaining, if available, a price index of maintenance items showing the relationship, say this year with last, or maybe the index is set up with 1926 as 100. If such detail is not available in your organization or through some article that might have been written, do you know if it is available in a government publication or through some other source?

R. F. Hennig, Dir. of Pur.
The Sherwin-Williams Co.
Cleveland, Ohio

● The U. S. Department of Labor's monthly wholesale price index is a widely accepted source authority. It contains detailed reports on a large and representative number of commodities, including many items which could be classified as maintenance items. The base period used in computing the index is 1947-49, and is so set up that comparison can be made with a year ago. To receive this bulletin regularly, write to the Bureau of Labor Statistics, U. S. Department of Labor, Washington 25, D.C.—Ed.

PURCHASING MANUAL

The purchasing manual used by the Texas Gas Transmission Corporation, described in the August issue, is of especial interest to me since I am actively engaged in buying, expediting, and all phases of procurement for construction work. If you will obtain a copy for me, it will be deeply appreciated.

William J. Ellis
Catalytic Construction Co.
Philadelphia, Pa.

● Request passed along to Purchasing Agent Stolpman of TGTC. —Ed.

PATENT INFORMATION

An article entitled "Legal Distinctions between Tradenames, Trade-Marks, Copyrights and Patents," by Leo T. Parker, appeared in the April 1952 issue of PURCHASING. If you have reprints of this article available, we would appreciate your sending us one, as we think the article is excellent.

W. W. Haefliger, Patent Dept.
McCulloch Motors Corp.
Los Angeles, Cal.

● No reprints. Copy of issue sent. —Ed.

FIGURES DON'T LIE, BUT . . .

In your July issue, under "Purchasing Opinion", you state: "*Four out of five (40%)* . . . . " My arithmetic teacher must have taught me wrong; I would figure it 80%. Hope you haven't gone to Fair Deal arithmetic.

Myron Powers, Gen. Pur. Agt
Arma Corporation
Brooklyn, N. Y.

● Flunked again! They say a country boy is never safe in counting beyond twenty, the point at which he runs out of fingers and toes. Perhaps we should have assigned two editors to this calculation. The figure of 40% was correct. The "explanatory" text is in error; it should have been "two out of five".—Ed.

RARE ITEM

Each month we read with interest your Office Equipment and Supplies section. You may be able to guide us in locating an unusual item of office equipment.

One of our officials made a speech in New York several years ago, at the Grand Central Palace, and found that the speakers' stand was equipped with an electrically equipped podium. The platform area which supported the speaker's manuscript could be instantly raised or lowered with an electric finger-tip control. Any information which you can secure will be appreciated.

F. Reifsnider, Supv. Buyer
Westinghouse Electric Corp.
Pittsburgh, Pa.

● Extensive survey of lectern manufacturers discloses no commercially available product such as that described. Our closest find: Ve Alite Corp., Brooklyn, N. Y., make an adjustable lectern device (non-electric) which slides up and down like a microphone stand. GCP personnel could give no help. However, our product sleuth did discover that International Business Machines Corp. had three electric-type lecterns made in their own shops, for their own use, some years ago. One of these was given to the Sales Executives Club of New York, and may have been used by the Club at a meeting held by that organization at the Palace in 1948. —Ed.

now! 5 basic types of Thermoid hose do the work of eighteen!

The new Thermoid line of molded hose cuts handling time and storage costs 70% or more in a wide variety of industrial and commercial uses! Thermoid's "Basic Five": Versaflex . . . Versicon . . . Aquair . . . Utility . . . Powerflex . . . now combine simplification and versatility with Thermoid top quality construction. And Thermoid's new standard color identification eliminates confusion in storage and stock selection!



VERSAFLEX

Multi-purpose hose built to withstand higher pressures. Recommended for butane, propane, insecticides, etc. Color code: *Red.*

VERSICON

A true all-purpose hose for virtually every type of air, gas or liquid. Color code: *Brown.*

AQUAIR

Rugged, dependable hose for handling air, water, welding gases. Color code: *Green*.*

UTILITY

Most practical hose for air, water and illuminating gases at pressures from 75 to 125 psi. Color code: *Black.*

POWERFLEX

Designed specifically for super heated steam at pressures from 100 to 200 psi. Color code: *Black.*

You can definitely simplify your buying, inventory, storage and stock selection with Thermoid's color-coded "Basic Five". Get full information from your distributor or write direct for Hose Catalog No. 3680. It's yours for the asking.

**Also furnished with Red Cover for acetylene*

Thermoid

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

THE PURCHASING JOB AT SAVANNAH RIVER PLANT

(*Continued from page* 104)

the participation by small business in the project.

This is the pattern: 70% of the orders placed have gone to small business; 35% of the dollar value of orders placed have gone to small business. There is another set of figures which may be of interest. These have to do with the amount of business placed in the Southeastern States: 70% of the orders have been placed in this area and 40% of the dollar value of the business has been placed here.

Project Built in American Way

And so we have one of the largest industrial construction projects in the history of the world. It is being built, not by slave labor, but by free men. Although it is a government financed job, it is being built in the American way according to the concept of the Free Enterprise System.

CHROME-CARBIDE GAGE BLOCKS ANNOUNCED BY DOALL



Gage blocks of the new man made metal, chrome carbide, developed to meet certain specifications, are announced by the DoAll Company, Des Plaines, Ill. The specifications were compiled for the purpose of obtaining a metal having characteristics that make it ideal for gage blocks. Gage blocks made of the new material are trademarked "DoAll DC Gage Blocks".

The DC blocks have the extreme hardness for which the carbides are noted, but offer advantages over tungsten-carbide blocks as well as chrome-plated and steel blocks. They are said to be extremely durable so that they may be freely used under almost any working condition and not only under laboratory conditions.

The blocks have a coefficient of expansion practically identical with steel. Consequently it is not necessary to allow for thermal expansion and contraction in measuring steel parts. Because of this the DC blocks may be used interchangeably with steel blocks. They weigh half as much as tungsten-carbide blocks and about the the same as steel blocks. Their wearability is said to be many times that of steel and superior to chrome plated steel or tungsten-carbide blocks. This improved wearability results from the superior surface finish obtainable with the new metal and its inherent resistance to oxidization and corrosion. It will not oxidize at temperatures up to 1000 deg. F., and resists perspiration and other types of acid normally encountered in the shop.

DoAll states that perfect stability can be expected from the new blocks, that they will not "grow" or "shrink" with age and if acidentally dropped, they do not change size from internal structural changes caused by instability.

The DC blocks are offered in A and B grade accuracy in four different sets—83 piece, 37 piece, 35 piece and 8 piece sets, covering a size range from .010" to 20".

BUYER'S & SELLER'S MART

Contract Work • Equipment For Sale • Employment and Business Opportunities

RATES

Undisplayed (set solid)	90¢ line
Positions Wanted	45¢ line
Displayed	$8.50 inch

REQUIREMENTS

Undisplayed (want-ad style), minimum charge 4 lines, prepaid. Figure forty-four letter spaces (five average words) to a line. Add one line for box number address; replies forwarded without charge.

Discount of 10% for twelve consecutive displayed insertions. Forms close 15th of month preceding date of publication.

Send orders to: CLASSIFIED DEPARTMENT • PURCHASING • 205 East 42nd Street, New York 17, New York

POSITIONS WANTED

OFFICE PURCHASING—Young woman, wide experience buying large quantities office supplies, paper, printing, engravings; office furniture, equipment and maintenance supplies. Good contacts and discounts. Box 1353, PURCHASING, 205 E. 42nd St., New York 17, N.Y.

GENERAL PURCHASING AGENT, 14 years experience Government and Industrial: General Contract Negotiation, Placement and Administration: General Administration and supervision and Warehouse. Midwest; preferably Chicago or environs. Box 1354, PURCHASING, 205 E. 42nd St., New York 17, New York

PURCHASING AGENT or ASSISTANT—Extensive chemical, oil, and industrial procurement experience. Able to organize and direct all phases purchasing procedure. College. Box 1346, PURCHASING, 205 E. 42nd St., New York 17, N.Y.

WANTED
BRIDGE CRANES
ARNOLD HUGHES COMPANY
765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894

MR. PURCH. AGENT

Established Detroit Engineering Co. needs contact men to sell quality tool design service. It's not necessary that he follow the program through if he doesn't desire. Can you recommend one? We'll extend full cooperation and furnish excellent references. Replies strictly confidential. Box 1352, PURCHASING, 205 E. 42nd St., New York 17, New York

An assistant to the purchasing agent of a medium sized paper mill in Wisconsin. A man between 32 and 40 years of age with 5 to 10 years of purchasing experience is desired. The experience need not be in paper mill purchasing. Some administrative experience desirable and ability in this direction will be necessary. A complete resume should be submitted. Box 1351, PURCHASING, 205 E. 42nd St., New York, New York

V-PULLEYS — Substantial stock of two leading makes at 40 percent of manufacturer's cost. Write for inventory and prices. McCune & Company, Inc., 3721 Mahoning Ave., Youngstown, Ohio.

BRIDGE CRANES
ARNOLD HUGHES COMPANY
765 Penobscot Bldg. Detroit, Mich.
WOodward 1-1894